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SMITHSONIAN DEPOSIT

THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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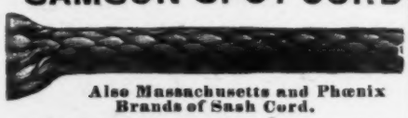

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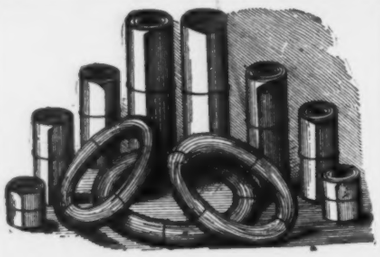

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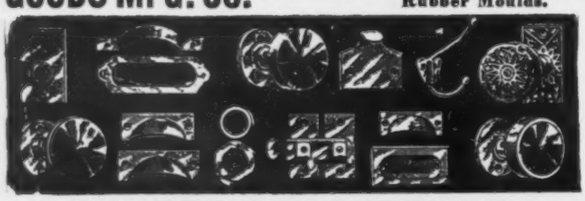

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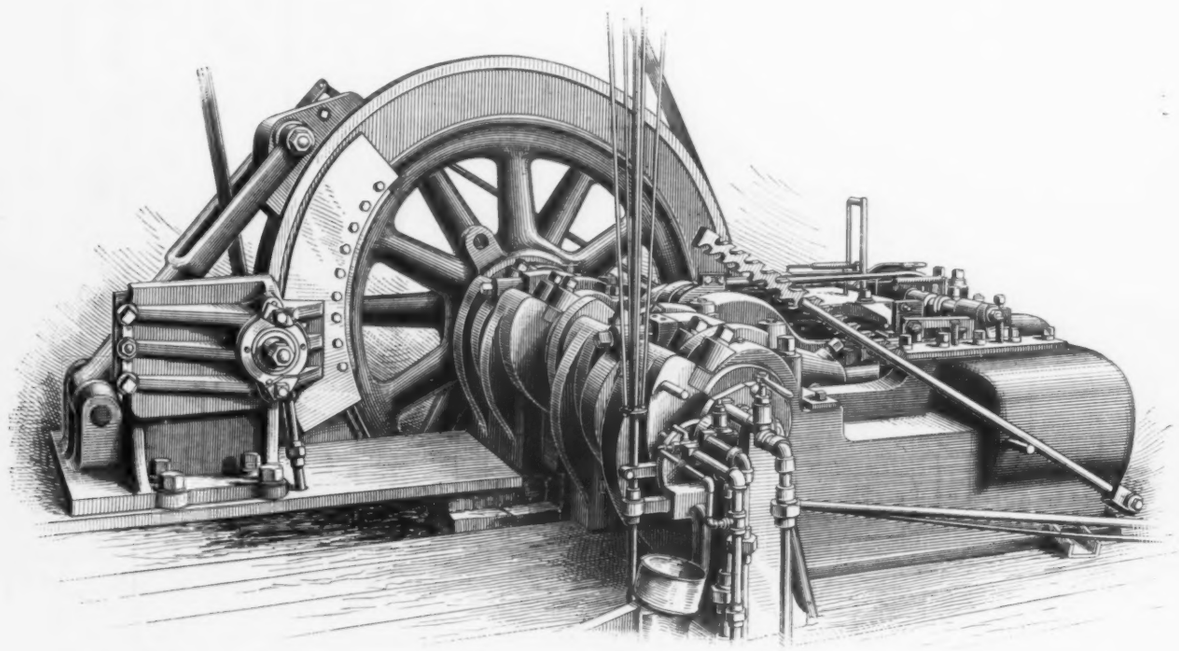
THE IRON AGE.

THURSDAY, AUGUST 24, 1899

The Rice Forging Machine at the Pope Mfg. Company.

A machine which marks a long step in advance in the forging of metals in both plain and intricate shapes is now in operation in the works of the Pope Mfg. Company at Hartford, Conn. It is the design of Charles De L. Rice, mechanical engineer of the company. The machine embodies features of the most decided originality, and which are a long way from the beaten path. The two most essential characteristics are found, first, in design, and, second, in the operation. While great ingenuity has been displayed in the former, the latter displays boldness far in advance of anything heretofore characterizing similar operations. Both of these points will be appreciated as the description develops.

By the means provided shapes impossible except by the drop forging method are easily and rapidly made, and with an accuracy and economy truly remarkable. Since the work can be duplicated indefinitely and to a practically perfect standard, the waste is reduced to a minimum, as is also the subsequent machining necessary. There is a literal forcing of the metal which has not been possible under the old system, and which permits of the forming of certain articles of intricate contour which have not before even been attempted with a forging machine.



THE RICE FORGING MACHINE AT THE POPE MFG. COMPANY.

As is well known, the usual forging machines operating upon work of a similar character have employed three dies, two for holding the blank and one for doing the upsetting. In these machines there may or may not have been more or less longitudinal yielding of the stock between the holding dies when struck by the upsetting die, which fact has accounted for the production of irregular and imperfect work. Further, this method has not been employed successfully for forcing the metal into side recesses of greater or less comparative depth.

In the new machine there are four dies, arranged in pairs and working in unison. One pair surrounds and holds the metal, the ends of which only are exposed, as illustrated in the sketch, Fig. 8. The two holding dies are here marked C^1 C^2, while the upsetting or forming dies are designated D^1 D^2. These latter act only upon the exposed ends of the blank and force it into the recesses made by the holding dies. Practically one pair forms a rigid mold, into which the metal is forced and which it completely fills by the action of the second pair. It is evident that as there is only the slightest possibility of the formation of burrs or of other escape of metal, the volume of the stock should not exceed that of the completed article, or, in other terms, that of the mold in which it is formed. This being the case, it is obvious that the metal must be forced into all the recesses of the dies and must fill them completely in order to produce an article of perfect shape.

One of the retaining dies is stationary while the other is movable. The latter is brought into position and held rigidly during the operation of the other or upsetting pair. The latter move at right angles with the other. The three movable dies are actuated from a cam and eccentrics on the main shaft, the timing being such that the holding die first moves forward, then the upsetting dies come into action and recede before the holding die lets go. But while this is the case the movement of the upsetting dies is slow as compared with that of the movable retaining die, so that after they have stripped themselves, but before their extreme ends have passed the extreme ends of the finished product, the withdrawal of the movable gripping die begins and is completed, whereby the upsetting or end dies act as strippers for the movable retaining die. Strippers operating automat-

ically are provided to kick the forging out of the fixed retaining die. The main shaft is driven by a continuously rotating fly wheel, which transmits power through a clutch at the proper time.

Rapidity of Operation.

Not the least essential to the success of a machine of this character is that of time. A slowly moving machine moves at the rate of 110 revolutions per minute, so that the work is actually performed in about one-half of a second. This means the starting, reaching full speed and stopping of about 6 tons of metal. The fact, therefore, that the machine possesses ample strength will be appreciated.

This speed is required by the shape of the articles made—bicycle parts. While the machine was intended

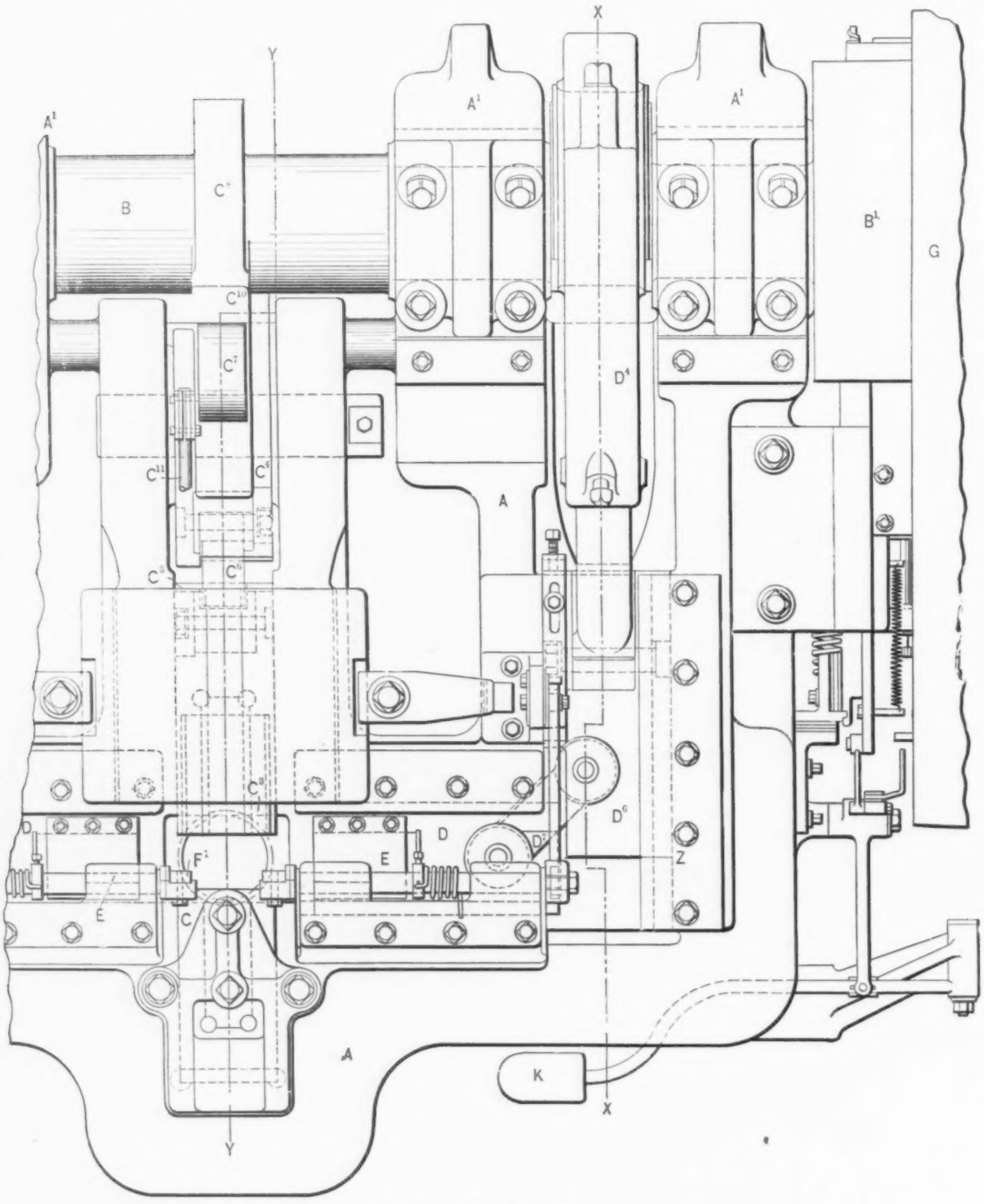


Fig. 2.—Part Plan View.

THE RICE FORGING MACHINE AT THE POPE MFG. COMPANY.

cannot accomplish the work, no matter what its design may be. Speed is absolutely necessary and successful work depends directly upon it. As has been said, the work is all performed during one rotation of the main shaft. This means that the clutch connected with the fly wheel is brought into operation, the shaft and connected parts are moved to perform the work, and are then brought to rest by the release of the clutch and the operation of a brake—all during one turn. The fly wheel primarily for making those parts of a bicycle usually formed under the drop hammer, it has a wider application, particularly in piercing operations, such as are present in making projectiles. In a slow moving machine a hot blank or billet would be cooled by contact with the comparatively cold dies before the necessary upsetting of the metal could take place. Success depends upon moving the metal rapidly and before it has had a chance to cool appreciably, and Mr. Rice in his design

has boldly accepted these conditions and made a machine of massive construction to do heavy work in the fraction of a second.

Description of Machine Proper.

The following description will, for convenience, be divided into two parts—namely, that covering the machine proper, or the dies and their operating mechanism, and that dealing with the clutch and brake for starting and stopping the shaft.

the article required. In the rear of this holder is a rocking frame, C^4, mounted upon a shaft, a link, C^5, being interposed between the forward end of the rocking frame and the rear end of the holder, so that the frame and link together constitute a toggle lever, as clearly illustrated in Figs. 4 and 6, by means of which the latter is forced forward, held firmly and then withdrawn. The frame C^4 is provided above its axis of oscillation with a roller, C^7, Fig. 6, which is operated by a cam, C^8, secured

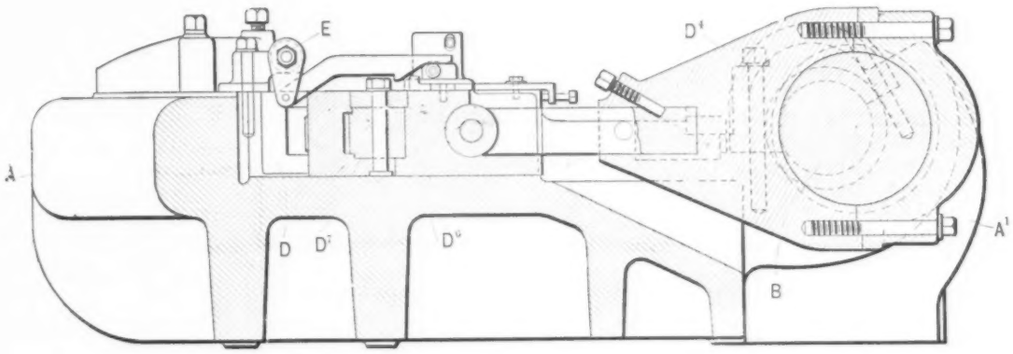


Fig. 3.—Vertical Cross Section on Line X X of Fig. 2.

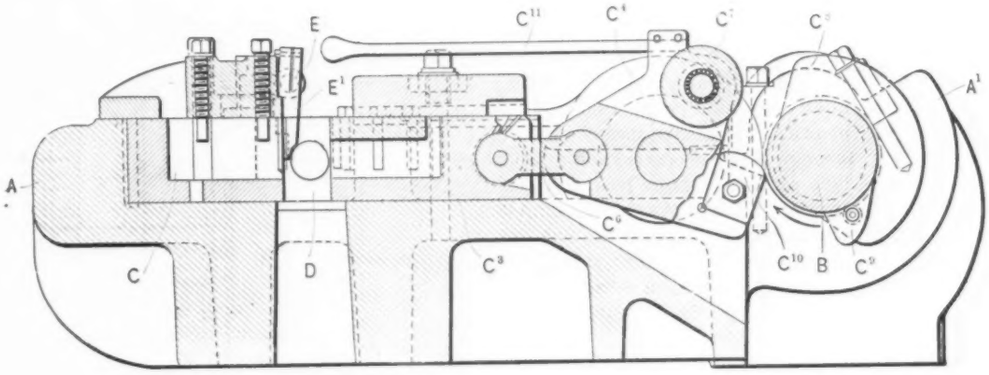


Fig. 4.—Vertical Cross Section on Line Y Y of Fig. 2.

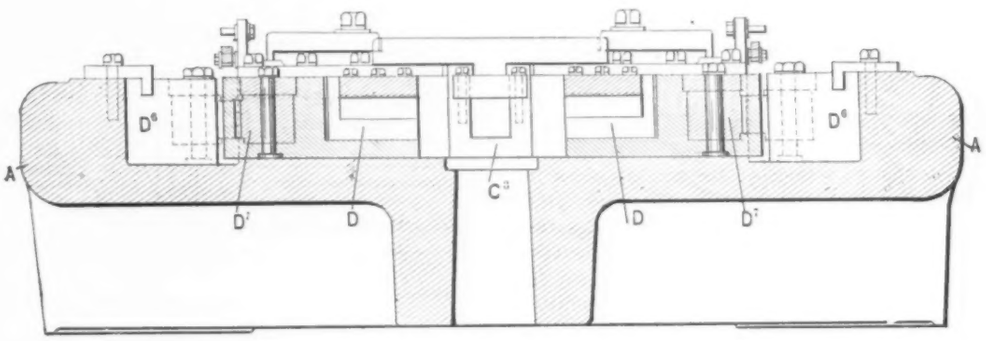


Fig. 5.—Vertical Section through Upsetting Dies.

THE RICE FORGING MACHINE AT THE POPE MFG COMPANY.

The second engraving, Fig. 2, is a part plan view, the left hand portion being omitted as unnecessary, because the two sides of the machine are alike. At the rear of the bed plate A is mounted the main driving shaft B in suitable bearings. From it motion is imparted to the several working parts. Centrally in front of the frame is placed the stationary holder C, which carries the retaining or forming die, indicated by C^1 in Figs. 8 to 12. The movable retaining die C^2, in the same drawings, is carried by the movable holder C^3 in Figs. 2, 4, 5, 6 and 7, the two dies forming a mold of the required shape to produce

to the driving shaft. This cam is adapted to act quickly, and has a long bearing surface of equal radius, approximating one-half of a circle, whereby the frame is held in its forward position without movement for an appreciable time in order to give the end or upsetting dies time to complete their forward movement and to be partially withdrawn before the movable die holder is moved away. At one side of the cam and near the rear end of its operating surface is a stud, C^9, so arranged as to strike a projection, C^{10}, secured to the frame and which by the further rotation of a shaft acts to rock the frame in the

opposite direction and thereby withdraw the movable die holder. A hand lever is secured to the frame so that the operator may rock the form by hand and so bring the movable retaining die nearly to position, leaving the completion of its movement to be effected by the cam. By

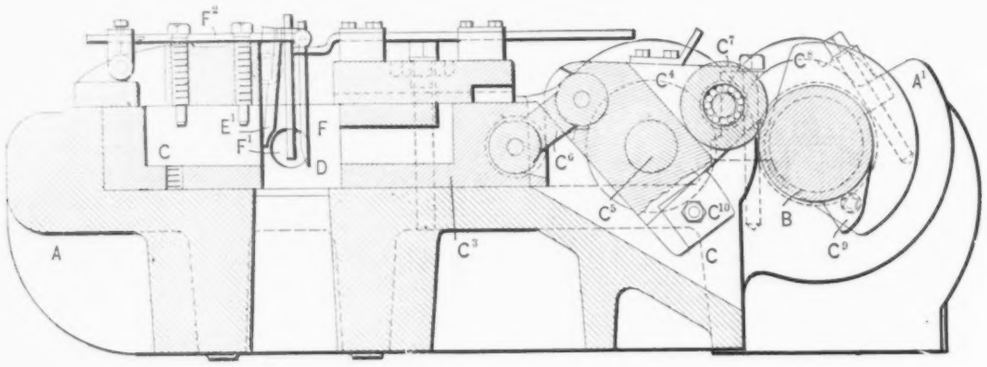


Fig. 6.—Section Similar to Fig. 4 but with Parts in Different Position.

this arrangement of the die operating mechanism the blank may be gripped firmly between the dies or it may he retained loosely between them, as may be desired.

The end or upsetting dies, shown at D^1 D^2 in Figs. 2, 3, 7, 8, 9, 10 and 11, move in opposite directions and in a path at right angles to that of the movable retaining die, as already explained. These dies are mounted in end die holders, D, which slide to and fro in guides formed in the bed plate substantially parallel with the shaft. These are operated by identically the same means. Near each end of the shaft is mounted an eccentric and strap, D^4, which is connected by a rod with a cross head, D^5, arranged to move in guides also formed in the frame. Uniting the cross head D^5 and the die holder D is the link or toggle lever D^6. At each rotation of the shaft therefore the end dies D^1 D^2 are pressed toward each other slowly as compared with the movement of the forming die C^2, but with great force, and act in opposite directions and simultaneously upon the billet which is in place between the retaining dies. These dies are formed to engage the completed forging by being cupped to cover the end thereof, as shown in the die D^1, Fig. 8, or by having a projection to form a corresponding depression in the forging, as shown in the case of the die D^2 in the same figure. The latter device is preferred where the forging is to be drilled subsequently, as must be the case in a bicycle hub.

After the end dies have completed their movement their withdrawal commences, but it progresses slowly as compared with the movement of the retaining die, because of the action of the eccentrics. This slow movement, however, is sufficient to withdraw the dies from contact with the forging before it is released by the opening of the gripping dies. As has been pointed out this movement of the last named dies is effected rapidly by the action of the toe cam C^9, and takes place before the end dies are entirely withdrawn from the forging, whereby the latter act as strippers for the movable retaining die. If the end of the forging is tapered internally or externally the two parts of the mold formed respectively in the faces of the two retaining dies are so shaped that the forging will draw the more easily from the stationary retaining die, whereby the first part of the movement of the retaining die strips the forging from the stationary die, and the movable retaining die is thereafter stripped during its continued movement by the engagement of the end dies with the ends of the forging, the taper of the ends of the forging permitting this action to take place. Dies adapted to do this work are shown in Fig. 10.

In bearings above each end die is mounted an oscillating shaft, E, Figs. 2, 3, 4 and 6, which is provided at its inner end with a stripping finger, E^1. The end of the finger is extended downward close to the stationary retaining die and in position to engage the end of the forging when thrown forward. Suitable means are provided for bringing into play this stripping finger. When the article to be forged is greatly overbalanced at one end billets of a diameter slightly greater than that of the mold

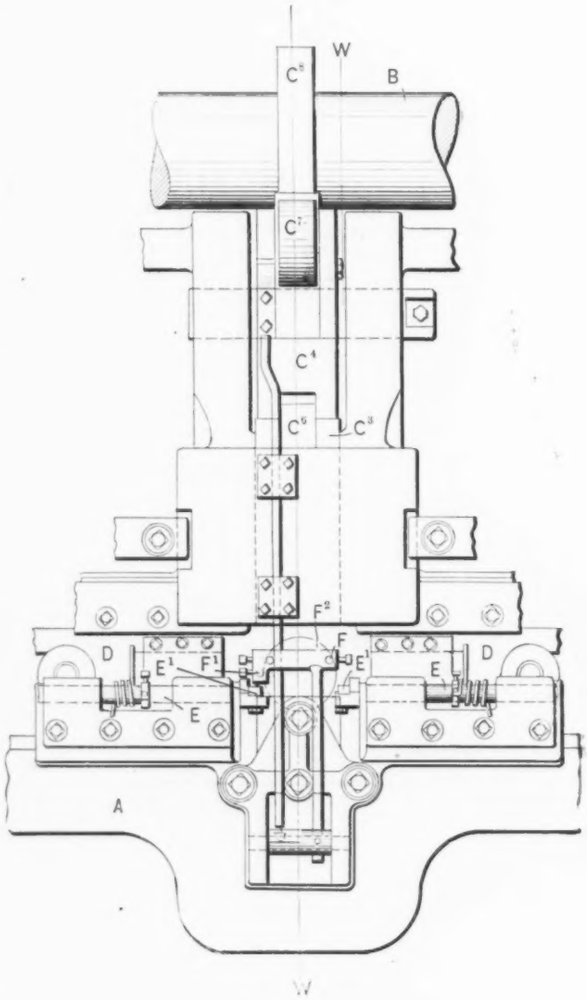


Fig. 7.—Enlarged Plan View Central Part of Machine, Similar to Fig. 2.

THE RICE FORGING MACHINE AT THE POPE MFG. COMPANY.

formed between the two retaining dies are used in order that the billet may be gripped tightly by the retaining dies, and thereby held from displacement before the action of the upsetting dies. In order to locate such stock properly gagging and retaining fingers, F^1 F, are employed for determining the position of the billet and re-

taining it temporarily in place. These are arranged to be withdrawn in time to clear the moving parts as they come into action.

The Clutch and Brake.

Both the clutch and brake are operated hydraulically, power being provided by a small pump at a pressure of about 1200 pounds to the square inch. These parts are by no means the least interesting and novel of the machine.

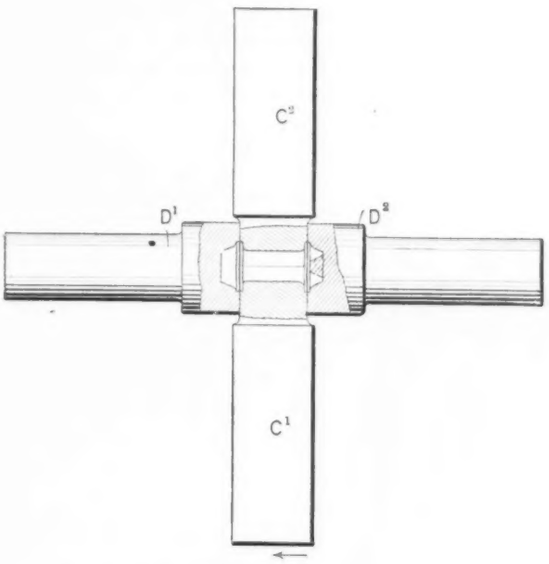


Fig. 8.—Sectional Plan of Set of Dies.

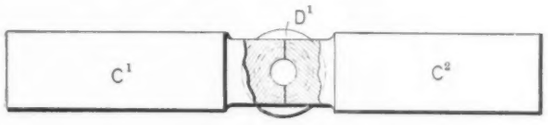


Fig. 9.—Side Elevation Fig. 8 through Forming Dies.

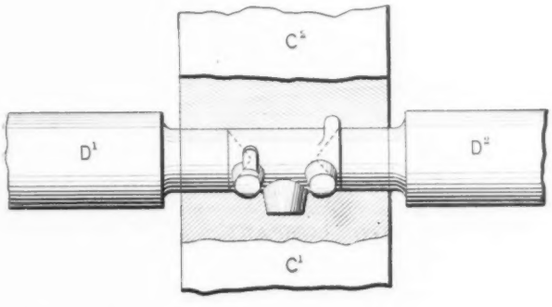


Fig. 10.—Set of Dies for Producing a Bicycle Crank Hanger.

We will first consider the clutch shown in Fig. 14 and in vertical section in Fig. 17.

Mounted rigidly upon the driving shaft is the wheel B, which has a tapered working face, *b*, for co-operation with the corresponding face *c* of the fly wheel C, which is continuously rotated by the belt, as shown in Fig. 1. In the cone face of the wheel C is a backing of wood arranged endwise. This wheel is mounted to rotate loosely upon the main shaft, upon which it can be moved longitudinally a distance sufficient to bring the cone faces of the two wheels into working contact. In order to move the wheel C away from the wheel B in order to separate the working faces, there is interposed between the hubs of the two wheels a bearing ring, D. Springs F, arranged as shown in the hub of the wheel C, tend normally to force the two hubs apart. The tension of these springs is regulated by the screws shown.

The hydraulic device by means of which the driver is brought into working contact with the driven wheel is designed so as to obtain the maximum pressure with the minimum of friction between the operating parts. The end of the shaft is chambered at a^1 and screw threaded to receive a sleeve, G^1, which is held in position by a lock nut, and which serves as a bearing and packing sleeve for a stationary tube. The latter has within the chamber a flange, between which and the end of the sleeve is interposed suitable packing material in order that the sleeve can turn freely upon the shaft about the stationary tube. Upon the end of the shaft and held by the jam nut *h* is a hub, H, between which and the shaft is an annular space, h^1, which communicates with the chamber a^1 through a port. An annular piston, I, fits within this

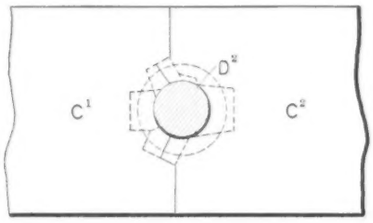


Fig. 11.—Side Elevation Fig. 10 through Forming Dies.

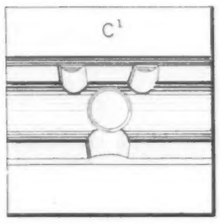


Fig. 12.

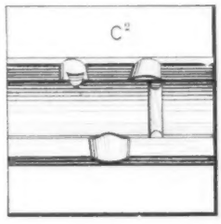


Fig. 13.

Face View of Forming Dies Fig. 10.

THE RICE FORGING MACHINE AT THE POPE MFG. COMPANY.

From the preceding description it has been noted that both of these devices must act with exceeding rapidity, and must be powerful enough to operate without fail upon the massive moving parts of the machine. Their general arrangement and position will be understood from the diagrammatic sketch, Fig. 15. It shows the relative positions of the machine, the clutch, the brake and the operating lever. Since both the clutch and brake are actuated by power from the same source, and since they perform work opposite in character, it is of course of the utmost importance that they should never be brought into action at the same time. Therefore the valves and piping are so disposed that the clutch is released the instant before the brake is applied, and *vice versa*.

space, being provided at its end with packing. This piston is caused to rotate with the hub H by a keeper, J, which slides freely through the hub and is secured to the flange of the piston I. The piston I bears against a bearing ring, C^3, which is carried by the driving wheel C. The tube G^1 is attached by piping, as illustrated in Fig. 15. When the pressure is applied the piston I is forced forward upon the shaft and the driving wheel C into contact with the spider B. As soon as the pressure has been released the springs F force the driver back out of driving contact with the wheel B, permitting the former to continue its movement while the latter is brought to rest.

The Brake.

The position of the brake is shown in Fig. 1 and its construction in Fig. 16. To the driven wheel B, and par-

allel with its plane of rotation is secured a segmental plate of metal, B^2, which is knife edged at its forward end, or end which enters the brake jaws. Co-operating with this plate are the two brake jaws K K^1, which are faced with wood. The jaw K is supported by a rigid standard, while the other jaw, K^1, is movable, being attached at its rear end to the first jaw by the bolts K^2. These bolts do not hold the movable jaw so rigidly but that its forward end may be moved slightly toward or from the other, so as to govern the distance between the friction plates. Upon the stationary jaw is formed a cylinder, K^3, which is connected to the source of pressure. Within the cylinder is fitted the piston K^4, to which is secured the piston rod K^5, which passes through the jaw K and engages in the jaw K^1, as shown in Fig. 16. When pressure is applied the two jaws are drawn together and the plate B^2 is firmly gripped between them.

The Pressure System.

The application of pressure to the piston of the clutch and the piston of the brake is so designed as to cause the release of the clutch and the application of the brake at the same time, and *vice versa*, so that either the clutch or the brake is in operation all the time, but never at the same time. Hydraulic pressure is supplied through the feed pipe L, Fig. 16, to an ordinary three-way valve. The pipes O and P lead respectively to the clutch and brake. The valve is provided with the exhaust pipe Q. The ports of the valve are so arranged that when the plug of the valve is in position to connect the pipe O with the feed L the pipe P will be in communication with the exhaust, and *vice versa*. Secured to the valve stem is a cam lever, N^1, having two arms, one of which is adapted to be engaged by a lug which is carried by the rod R. The upper end of this rod is connected to a crank disk and at its lower end to the treadle K. The arm of the cam lever on the valve stem stands in the plane of rotation of a roller fixed eccentrically on the end of the main shaft. A crank disk is driven continuously from a suitable source and its rod, R, receives a continuous to and fro movement in a vertical direction. Normally this rod is held away from the cam lever on the valve stem and the treadle is held in its normal position by the action of a spring. If the treadle is depressed the rod R will be drawn toward the cam lever on the valve stem, this action so moving the valve as to cause the clutch members to spread and the brake at the same time to close. As the rod R moves upward the valve is shifted, causing the brake to be opened and the clutch to be closed. The machine, therefore, starts, and as it completes its revolution the roller or stud carried by the shaft strikes the arm of the valve lever, shifts the valve to its original position, opening the clutch and closing the brake, and bringing the machine to rest. The attendant is required to use no more force than is necessary to depress the treadle. The continuously rotating crank disk provides for the desired movement of the valve in one direction, while the movement of the machine itself affects the movement of the valve in the opposite direction at the moment required for stopping.

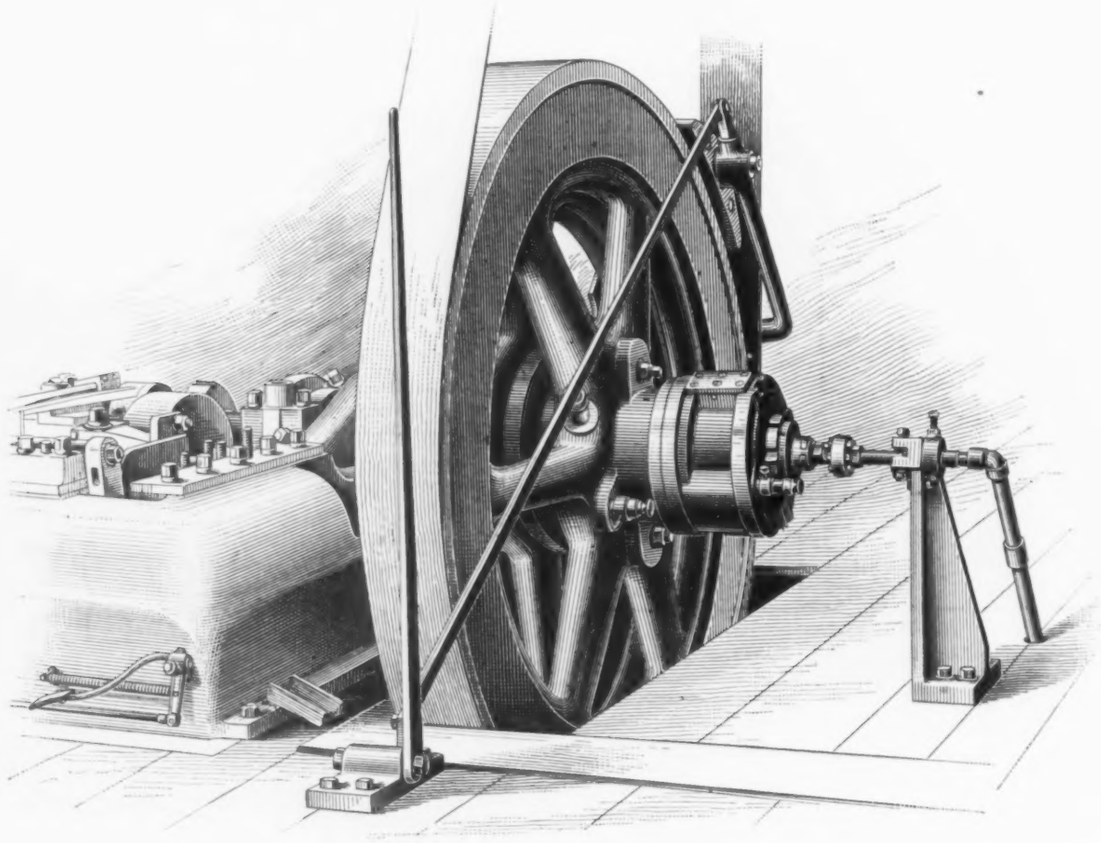


Fig. 14.—View of Clutch Side of Machine.

THE RICE FORGING MACHINE AT THE POPE MFG. COMPANY.

The accuracy of these movements can be judged from the fact that the machine will stop within 1 inch of a predetermined position.

The wheel rotates toward the right, reference being had to Fig. 1. In the application of the brake the tendency, therefore, is to lift it. To overcome this it is tied by heavy bolts to a massive foundation sunk deep in the ground. The weight of the fly wheel is so great that it became necessary to apply a brake in order to quickly stop its movement when the power had been shut down. This brake rests upon the face of the driving wheel and consists of a heavy cast iron shoe carried in a yoked arrangement, as shown in Figs. 1 and 14.

The power of this brake is further increased by the

lever, which may be operated by the attendant, and the arrangement of which will be clearly understood from the engraving, Fig. 14.

For the foregoing and for assistance in the preparation of our engravings and description we are indebted to the kind courtesy of Mr. Rice, the designer.

The Promise of the Crops.

Western farmers are likely to be swamped with money next winter. Reports from all the great agricultural States of the Middle West indicate that the crops now being harvested and those that are approaching the harvest season will excel those of any former year. This is true in Illinois and Wisconsin, throughout Iowa, Missouri, Minnesota, the Dakotas and Nebraska. From everywhere come reports of phenomenal crops. The farmers are crying for help for the harvest fields and are offering wages that would have seemed impossible a few years ago.

Last year Nebraska produced 150,000,000 bushels of corn, and it was called a great crop. This season's yield is estimated at 320,000,000 bushels, or more than double the yield of 1898. The Kansas crop last year was 130,000,000 bushels. Crop experts compute the yield this year in Kansas at 340,000,000 bushels. These figures are given by State officials. Full allowance, they say, has been made for damage by grasshoppers, hot winds and other adverse conditions. The same story is told by other corn growing States.

The wheat crop of the Northwest simply dazes the farmers, and they are trembling lest they will not be able to harvest it. They are making frantic appeals for harvest hands at wages running from $2.50 to $6 a day, and employment agents are overrun with applications for men to go out into the fields and gather the crops. In the meantime the women and children have been impressed into service and have dropped housework to help in the harvest field. The corn crop of the great "corn belt," extending from Illinois through Missouri, Kansas and Nebraska, now gives promise that the coming season's proceeds will pay off the last mortgage and put an organ, a Bible and plush album in every home in the district.

The effect of this tremendous crop can scarcely be realized by the people of the cities or the farmers of the East. The big crops of last year, together with the high prices, very nearly cleared off all mortgages on Western farms. The prospects for the present year are that the farmers will clean up the last vestige of debt and provide themselves with all necessary machinery, furnish their homes with comfort, if not with luxury, and have money in the banks for future use.

The corn fields of Iowa, Nebraska and Missouri are almost beyond the belief of anybody who has not looked them over. The corn stands high above the heads of the tallest man, and, barring some unlooked-for and appalling disaster, the yield will be almost unprecedented. One good result of the years of the poor crops is that the farmers have developed along lines allied with the raising of the crops. Time was when corn was worth so little that the farmers used it for fuel. But the farmers of the West and Northwest have found a way to use their corn without selling it to the elevator man at whatever the latter chooses to give. In nearly every one of the Western States the growers of corn have become breeders of cattle and hogs. If they cannot get a decent price for their corn they keep it and feed it to the live stock and sell the stock at a figure that gives them a good profit for the corn and the work of converting it into meat.

Throughout Minnesota and the Dakotas the wheat crop as it stands to-day presents a picture to gladden the hearts of the farmers and of all other people as well. It is one of the greatest crops ever grown on the Western prairies. Of course, there will be local mishaps, such as the hailstorm in Cass and Traill counties, in North Dakota, where the crops on some 20,000 acres of land were destroyed. But while these accidents are deplorable to the district and the people interested, they affect only in a small way the general conditions.

This tremendous crop in the West means as much to the merchant as to the farmer. With debts paid and money in the bank, the farmer becomes a good customer. And when the merchant is selling freely for cash the jobber and the manufacturer are kept busy supplying him, and the manufacturer then reaches out for more men to whom he can offer permanent work—and so it goes down the entire line. And, to go a step further, the increased number of laborers in the factories call for more food supplies, and thus the prosperity again helps the farmer.—*Chicago Inter-Ocean.*

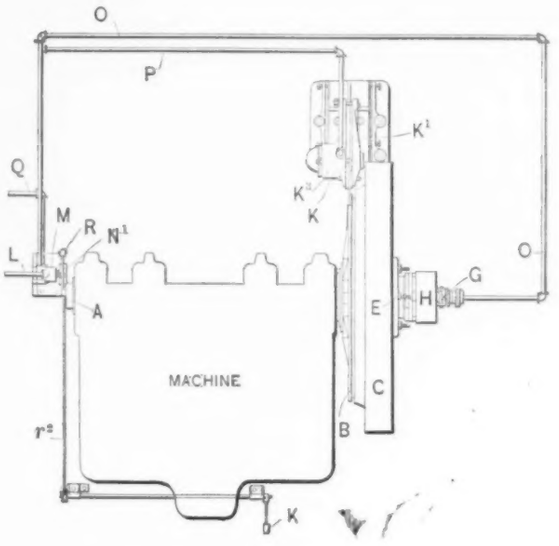


Fig. 15.—Diagrammatic Sketch, Showing Piping.

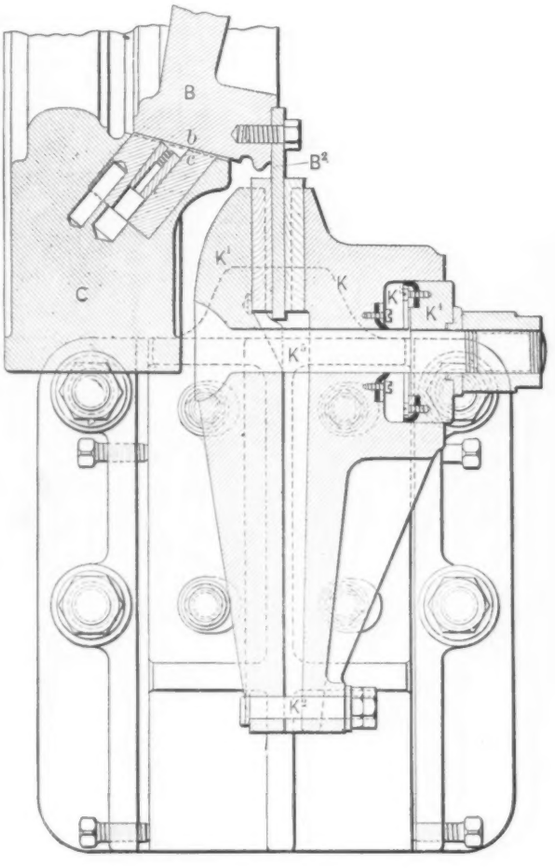


Fig. 16.—Section through Brake.

THE RICE FORGING MACHINE AT THE POPE MFG. COMPANY.

Another Japanese Bridge Contract.— The Phœnix Bridge Company, Phœnixville, Pa., have just received the contract to build the Kagashina viaduct in Japan. The viaduct is to be of steel, of five spans, and about 1000 feet in length and 100 feet high. The engineers are now at work on the specifications. The contract was secured in competition with the leading European bridge builders. The company have just completed

building 18 steel bridges for the Chinese Eastern Railroad Company, and they are now on their way to Vladivostok. They have also just received the contract to build a number of steel railroad bridges for Northern Mexico.

Large Orders for Blowing Engines.

A good indication of the preparations going forward to increase the capacity of our blast furnaces is furnished by the orders placed for modern blowing engines. Many of them are for old plants, to strengthen and improve their equipment, others are for new plants. In either case, of course, they will not become effective in increasing output for a year or more to come. A good illustration of the amount of work being done is furnished by the recent sales of the Pittsburgh branch office of the Edward P. Allis Company of Milwaukee, Wis., who have sold the following engines:

Seven vertical cross compound Steeple type blowing engines have been sold to the National Steel Company and five to the Riter-Conley Company, to be installed at the four furnaces they have under construction for Sydney, Nova Scotia. Each of the above machines consists of two cylinders, with an effective diameter of 96 x 60 inch stroke; one high pressure steam cylinder of 50-inch diameter, one low pressure steam cylinder of 96-inch diameter, each 60-inch stroke. The main shaft is 28 inches in diameter and the fly wheel is 24 feet in diameter, weighing 120,000 pounds. The total weight of each engine is 1,200,000 pounds and the capacity of each is 50,000 cubic feet of free air at a pressure of 25 pounds per square inch. These engines are duplicates of the two just erected for the Duquesne furnaces. The E. P. Allis Company have also secured orders for a number of engines of the same type, but of lesser capacity. Each of these latter machines has two air cylinders, with an effective diameter of 84 x 60 inch stroke. The main shaft is 23 inches in diameter and the fly wheel 24 feet in diameter, weighing 100,000 pounds. The shipping weight of each of these engines is 750,000 pounds and they are capable of delivering 38,000 cubic feet of free air per minute at a pressure of 25 pounds per square inch.

The following is a list of some of the orders booked for their engines, viz.: Two for the Riverside Iron Works, at Wheeling; three for the Pennsylvania Steel Company, at Steelton, Pa.; one for the Patent Nut & Bolt Company of Birmingham, England; four for the American Steel & Wire Company and one for the National Steel Company for their Youngstown plant. These are duplicates of the following engines recently installed, viz.: One at the American Steel & Wire Company's Edith plant, one at the Edgar Thomson Works of the Carnegie Steel Company and one at the Ætna plant (Mingo Junction) of the National Steel Company.

The Pittsburgh office has also secured orders for three vertical Simple type blowing engines from the National Steel Company for their Bellaire plant, one engine for the Clinton Iron & Steel Company (South Side), Pittsburgh, Pa., and three engines for the Sloss-Sheffield Iron & Steel Company of Birmingham, Ala. Each of these machines has one 84-inch effective diameter air and one 42-inch diameter steam cylinder, each 60-inch stroke.

The air cylinders of the blowing engines built by the Edward P. Allis Company are fitted with Kennedy's inlet air valves. By their use nothing is added to the clearance of the cylinder. They are noiseless and positive in their operation. The delivery valves are Reynolds' patent. Both the inlet and delivery valves are driven from the same eccentric, located on the main en-

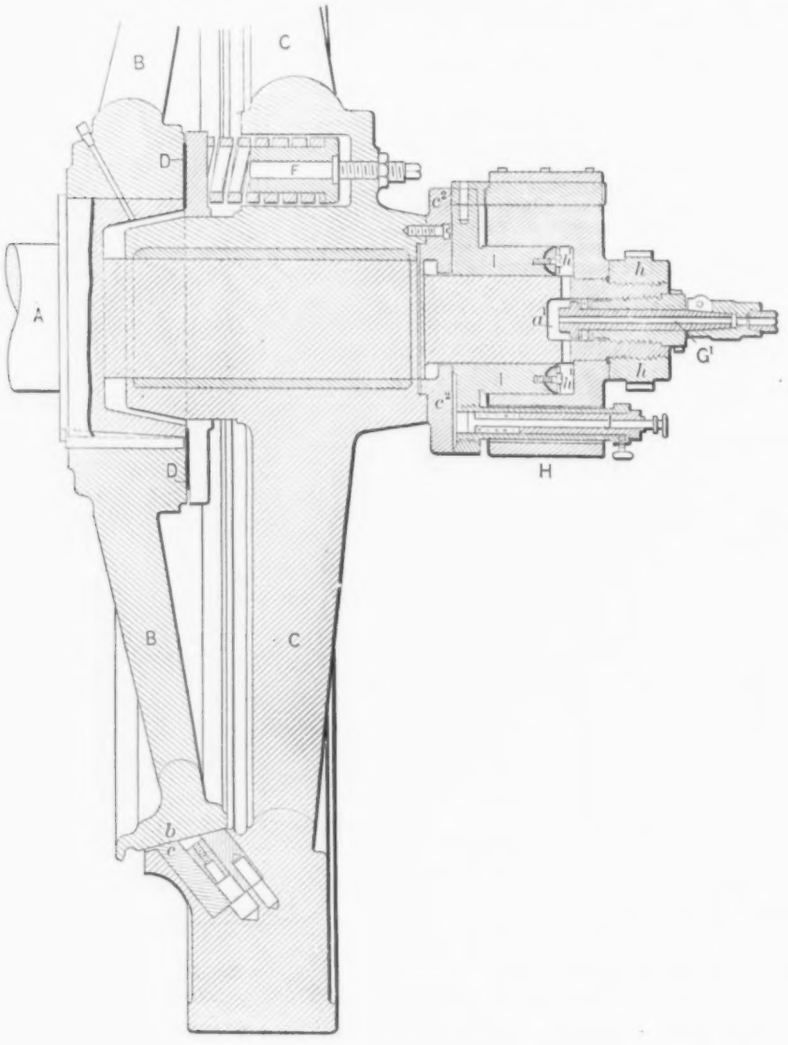


Fig. 17.—Section through Hydraulically Operated Clutch.

THE RICE FORGING MACHINE AT THE POPE MFG. COMPANY.

gine shaft. The discharge valves are made of solid steel, cold drawn and cup shaped. These valves are closed mechanically by a connection from the eccentric when the air piston reaches the end of its stroke. They open automatically at any point of the piston travel when the air which is being compressed equals the receiver pressure. The connection from the eccentric actuates the gear in such a manner as to withdraw a freely moving plunger inside the discharge valve and forms a space between the valve and plunger. This space is filled with air at the receiver pressure, so that when the valve leaves its seat, which is at the point when the air pressure in the cylinder equals the receiver pressure, the movement of the valve is arrested by the film of compressed air lying between the valve and the plunger. This insures a noiseless opening of the valves.

Lake Iron Ore Matters.

DULUTH, August 19, 1899.—Vessel rates have again advanced, and charters are being made here at $1.30, with $1.15 from Marquette and the Escanaba rate practically at $1. An immense amount of wheat will be chartered here the coming week at about 3½ cents a bushel. New crop wheat is beginning to arrive, and in two or three weeks will be coming at the rate of 1,000,000 bushels a day. Then ore shipments will slacken. Captain Sellwood, mining manager for the American Steel & Wire Company, is of the opinion, notwithstanding, that fully 16,000,000 tons will go forward for the season. It is interesting to note that the writer has in his possession a set of figures for many individual mines and all ranges made by Captain Sellwood in March last for your correspondent that are going to prove very close to the totals of the year.

It is stated that the Oliver Iron Mining Company are employing 4500 men in mining and exploring in Lake Superior. The figure is probably much too high. The company's output this season will be 4,000,000 tons, and that of the Minnesota Company 3,500,000 tons, and the force employed by the latter is not nearly so large. By recently announced leases and purchases the Consolidated Mines Company have added to their holdings about 16,000,000 tons of high grade ores in the Hibbing district. The company's mining this year will amount to nearly 1,500,000 tons.

An enormous work is to be carried on by the Great Northern Railway the coming winter, in connection with its ore shipping interests from the Mesaba range. This will be the construction of the dock, briefly referred to in this correspondence lately. The magnitude of this dock and the engineering problems involved cannot be realized by the uninitiated. To-day the highest and widest docks in the world are those of the Duluth & Iron Range and Duluth, Missabe & Northern roads, with extreme limits of slightly under 60 feet hight above water and width of 49 feet. The longest of these is 2400 feet. The Great Northern proposes to erect a dock 73 feet high and 63 feet wide, and has let dredging contracts, and is preparing plans for the construction. Its pockets will hold from 300 to 350 tons of ore each, instead of 200 tons, the maximum at present. At first glance it may seem possible to increase the size of a structure without limit by an increase of material, but this dock will present features that will necessitate change in methods of construction, and a striking into new lines that may or may not prove successful. The customary price of ore docks of modern size has been averaging of recent years about $1200 per pocket, and some 30,000 feet, B. M. has been used per pocket. The size and extra strength required of this dock will bring the material up to about 50,000 feet per pocket, and the cost, as near as can be estimated in advance of plans, to not far from $2000 per pocket. The dock will be 2100 feet long, and as the width of the pockets is fixed at 12 feet centers by the requirements of the shipping interests there will be 350 pockets on the two sides. The cost of the whole structure can hardly fall under $700,000, and the timber consumed will be in the neighborhood of 17,500,000 feet, most of which must come from the Pacific Coast. Contracts for the dredging have been made and the work begins at once. The bottom at the dock site is muck, and the foundation can scarcely be less than 30 to 40 feet below water level, making a total hight from the solid ground to the deck where the heavy locomotives and cars will be run and switched, of from 100 to 110 feet. The floors of the pockets will be laid at an angle of 45 degrees, which is from 6½ to 5 degrees steeper than usual practice to-day, and will cause the entire weight of the ore to bear on the sides of the pockets. This dock is built exclusively for Mesaba ore, and this soft ore will slide easier with steeper floors. Five lines of rails will be laid on each side of the top, making four tracks over each pocket. No dock is in use at present that has more than four lines of rail. This dock will have a capacity of more than 100,000 tons of ore, the largest at present being No. 2 of the D. M. & N., with about 60,000 tons capacity.

The strike at Section 21 mine, of the Oliver interests, old Lake Superior Iron Company, is an instance of how far men will go when they find they are in demand. The scale here was, or was to have been made in a few days, $2.25 for contract mining and $2 for day men. The men wanted this for an eight-hour day. The company now state that they will not pay the advance, and there certainly is a limit beyond which no concern can afford to go. This fact seems to have been entirely lost sight of by the men recently.

Speaking of men, the manager of a mine that will ship not to exceed 75,000 tons told me yesterday that he could use 100 more men if he could get them, which he could not, and that everybody else was in the same situation. He did not appear to realize that the additional ore they might mine could not, perhaps, be gotten to the consumers except at an exorbitant price, if at all. That is about the meat of this talk about labor, and the fact that men are scarce is not entirely without compensating advantages. But their scarcity results in constant fear of strikes and demands that ought not to be met and perhaps cannot. No one knows to-day when or where the next strike may break out, and no mine manager, however much he may be paying, and however well he has treated his men in the past, can tell what a day may bring forth.

It is reported from Sault Ste Marie that the Minnesota Iron Company have optioned lands at Michipicoton. I am in a position to authoritatively deny this. The story probably rose from my note of last week, that operations were under way there by Ely, Morse, Pickands, &c., who have an option there. The lease of the Stevens exploration, Mesaba range, to the Oliver Company, has been announced this week as new. It was published in this correspondence in May last, and there is no change in the deal since then. Franklin group, Mesaba range, is hoisting and stock piling ore, an unusual proceeding for this time of year, but made necessary by the scarcity of tonnage. Some 25,000 tons are in stock at the group. A number of transfers of mining lands on this range have been made of late, and some new explorations begun.

P. L. Kimberley has leased the Eveleth town site property as a personal deal, and will begin work opening a mine next month. The property is an underground proposition, with from 40 to 60 feet of surface. There is ore to a depth of 218 feet in one exploration pit, and some 7,000,000 tons in the deposit, all of which can be so mined as to come within the Bessemer limit. The mine will be wet, and is a 30-cent lease. There is a 200,000-ton minimum.

The Old Lee-Peck, near Crystal Falls, is under option to Corrigan, McKinney & Co., and is to be explored thoroughly. D. E. W.

Penalties for Delays in Delivery of War Material.

WASHINGTON, August 22, 1899.—The Navy Department, following the policy of the War Department in its recently promulgated warning to contractors regarding delays in the delivery of material and supplies, has prepared a clause which will be incorporated in the future in all specifications prepared by the Department. This action grows out of a conference between the Secretary of the Navy and the Paymaster-General, and the new provision will be rigidly enforced. It is as follows:

"It is further agreed that a reduction of 2 per cent. on the contract price will be made on all supplies not delivered, or services not completed, by the last day of the time limit specified; with a further reduction of 1 per cent. for each additional day's delay, until satisfactory delivery shall have been made or services rendered. Delivery or services rejected shall not be considered in bar of penalty. In the event of penalty equal to 25 per cent. of the stipulated value of the delayed delivery, or services, the contract may be canceled at the option of the Government and the debarring of the contractor from competition for future contracts may follow: Provided, That delays caused by strikes, riots, fire or other disaster may be considered and excepted of penalty at the discretion of the Secretary of the Navy." W. L. C.

The Ordnance Bureau of the War Department has awarded contracts as follows for a quantity of armor piercing and deck piercing projectiles: Benjamin Atha & Illingworth Company, 440 12-inch armor piercing shells; Carpenter Steel Company, 202 12-inch armor piercing shells and 1200 deck piercing shells; Midvale Steel Company, 811 deck piercing shells and 212 torpedo shells; Taylor Iron & Steel Company, 800 12-inch torpedo shells. The total value of the contracts is $443,664.

Canadian News.

A Bicycle Amalgamation.

A strong syndicate made up of Toronto and Ottawa capitalists has bought out four of the best known bicycle manufacturing companies in Canada. The transaction was concluded on the 17th inst. It brings to a close a long train of negotiations which began last winter. At the outset the object was to bring all the manufacturing concerns of the country into one company, but the efforts directed to that end were unsuccessful, and the negotiations were declared off. Immediately afterward they were reopened with the main parties, other capitalists having been induced by the promoters to take an interest in the matter. The most important of the other capitalists in question is the Hon. George A. Cox, Toronto, Dominion Senator. Mr. Cox is at the head of the Dunlop Tire Company, lately formed in this country, and this connection would, of course, be a reason for making it to his advantage to get a large influence in the bicycle manufacturing industry. Senator Cox is one of the principal members of the syndicate. Other members are Warren Y. Soper, Ottawa; W. E. H. Massey, Toronto; Hon. Lyman M. Jones, Toronto; E. R. Thomas, Toronto. Mr. Massey is president of the Massey-Harris Bicycle Company, Mr. Jones is general manager of the Massey-Harris Company, and Mr. Thomas is manager of the Toronto branch of the Cleveland Bicycle Company. The companies bought out by the syndicate are the H. A. Lozier Company, otherwise known as the Cleveland Bicycle Company, Toronto; the Massey-Harris Bicycle Company, Toronto; the Goold Bicycle Company, Brantford, and the Welland-Vale Bicycle Company, St. Catharines. All are in Ontario. All the cash stipulated is paid, and the syndicate assumes control on September 1. The output of the companies is 30,000 wheels per year.

It has been decided by the syndicate to organize itself into a joint stock company with a capital of $6,000,000, the head office to be in Toronto. Application is to be made at once to the Ontario Government for a charter of incorporation, or to the Dominion Government for a special charter. No name for the proposed company has yet been agreed upon. W. E. H. Massey will likely be president. It is the intention to run the establishments on existing conditions, each factory continuing to produce the particular type of wheel by which its reputation has been made. One object put forward as the *raison d'être* of the amalgamation is the meeting of American competition in Canada. It is estimated that half the wheels used in Canada come from the United States, but Canadian makers hold that these are not the high-grade bicycles that can be produced here to sell at equal money, once the expenses of doing business are cut down by amalgamation. Another object is to swell the export bicycle business. A third object is to go into the manufacture of automobiles. One of the most prominent members of the syndicate says it is believed that electric motor cycles or automobiles can be turned out by the new concern at prices much below what it now costs to purchase these vehicles.

Dominion Steel Company.

On the 17th the directors of the Dominion Steel Company held an important meeting in Montreal. Among those present were H. M. Whitney, the president; Senator Geo. A. Cox, Toronto; Senator McKeen, Halifax, N. S.; Sir William C. Van Horne, chairman of the C. P. R. Board of Directors. The question of appointing a superintendent was discussed, though without coming to any decision. It is expected that a first-class man will be appointed in the near future. The contracts for the entire plant have been given out, and the work on the coke ovens, blast furnaces and steel works will be pushed ahead at once. It is expected that within 18 months the company will commence the manufacture of steel on the extensive scale proposed.

Hardware Duties.

On the 15th inst. there was a special meeting of the Metal and Hardware Manufacturers' Association of Montreal, William Macmaster presiding. It was called to consider the customs regulations in regard to the importation of metals and hardware. The law provides that all goods shall be dutiable at the market price current at the time of shipment, but it is said that this regulation has not been enforced until lately, when the price of hardware is very high. On certain purchases made by Montreal wholesalers some time ago in the United States and in the United Kingdom for future delivery, the price has since gone up from 10 to 100 per cent. Now when the goods are being received the wholesale hardwaremen have to pay the ad valorem duty on their present price. Formerly the purchase price was the one on which the duty was reckoned. The association has resolved to ask the Minister of Customs to take measures to have the law administered evenly at all the ports. It has sent in a request to the effect that the collectors at all ports be instructed to value in accordance with the new regulation, as it apprehends that at some ports wholesale hardware competitors are getting goods through upon the purchase price as a basis of valuation.

The Navigation Company.

The Quebec, Hamilton & Fort William Navigation Company have issued their prospectus, and the stock is now on the market. They will begin upon the construction of vessels of the largest size which can be sent through the Canadian canals. The company will have the advantage of a monopoly of the ore carrying trade for the Hamilton Steel & Iron Company, as the directorates of the two companies are practically the same. The steel used in the company's vessels will be made in Hamilton. The ore trade from the head of the lakes will keep busy six vessels of the size it is proposed to build at the outset.

Trade Items.

The large pile of iron ore—3000 tons—lying on the dump at Coe Hill has been sold to Mr. Lonnechar, a Pennsylvania iron man.

Mr. Ogilvie, the owner of the great flour mills at Winnipeg, is about to build a mill of still greater capacity at Fort William. He has ordered from the Lawrie Engine Company of Montreal a 1000 horse-power steam engine of the Corliss type for the Winnipeg mill. This additional power will increase that mill's capacity 3000 barrels per day.

Owners of mica mines in the rich mica deposit of Ottawa County, Quebec, have called upon the Provincial Attorney-General to have an inquiry made into extensive thefts that have been made from the properties. Thousands of dollars' worth of mica in excess of the admitted output of the mines now working have been brought to Ottawa and sent to the United States for electrical plants. Systematic mica-stealing has been conducted on a large scale.

The Lachine Rapids Hydraulic & Land Company, Montreal, have declared a dividend for the half year ending with June, of 2 per cent. on the paid up capital of $1,250,000, after paying 6 per cent. interest on $600,000 worth of bonds.

C. A. C. J.

Patents in 1898-1899.

The report of the United States Commissioner of Patents for the fiscal year ended June 30, 1899, shows that there were received during the year 35,352 applications for mechanical patents, 2292 applications for designs, 91 applications for reissues, 1610 caveats, 2473 applications for labels and 112 applications for prints; a total of 41,930 applications. There were 23,550 patents granted, including reissues and designs; 1406 trade-marks, 372 labels and 76 prints were registered. The number of patents that expired was 16,670. The number of allowed applications which were by operation of law forfeited for non-payment of the final fees was 4021. The total receipts of the office were $1,209,554.88; the total expenditures were $1,148,663.48, and the surplus of receipts over expenditures, being the amount turned into the Treasury, was $60,891.40.

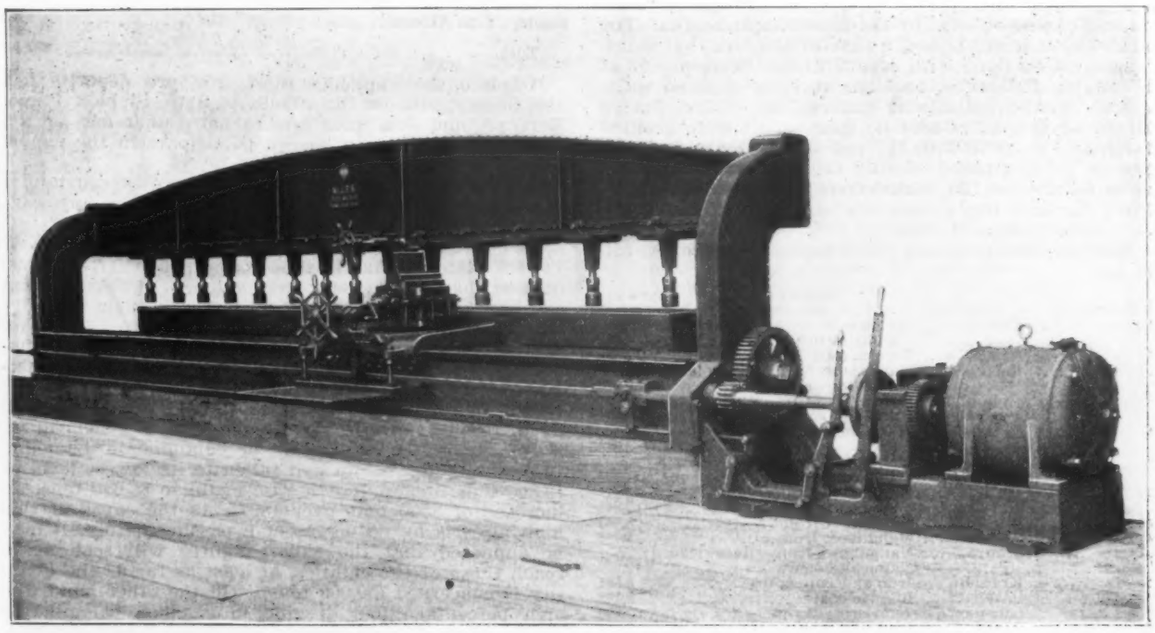
The Severance Cut Nail—Arrangements are being made for the organization at Chicago of a company to manufacture a cut nail of original design under patent granted to W. N. Severance of Chicago on June 13, 1899, for a rotary nail cutting machine. This machine, as the name indicates, has rotary cutters which produce chisel pointed nails of a shape different from the usual cut nails. The Severance nails are tapering and chisel pointed and are made with heads which are not upset but are of the same width as the body of the nail. In cutting the nails the machine makes practically no waste, as the point of one nail is complementary to and lies adjacent to the head of the next nail, thus avoiding the turning over of the strip or nail plate from which the nails are sheared. The nails thus made are much lighter than the usual cut nail and also lighter than wire nails, running 20 per cent. more to the pound than the latter. The cutters in the machine overlap the nail strip and their cutting line has no point to break. The machine also has an automatic feed with an adjustable positive stop. Nails made on an experimental machine have been tested by practical men, who speak highly of their special features and particularly with reference to their holding power. The chisel point of course enables the nail to cut the fibers of the wood into which it is driven, while the small head avoids the necessity of setting the nail and using putty to make a finish over which to paint. It is expected to use old steel rails for the manufacture of the nail plate.

The Niles Heavy Plate Planing Machine.

The Niles Tool Works of Hamilton, Ohio, have designed a machine to plane plates 2 inches thick and 25 feet long with one setting, or any lengths by additional settings.

The bed is extra heavy, and to it brackets are attached carying the work table. The work table is provided with T-slots and stop holes. The work is held by trolley jackscrews, which are hung on the flange of a heavy box girded amply stiff to take the thrust of the jackscrews. The housings are secured to the bed by bolts and dowels. The driving screw is of large section, 2-inch pitch and supported its entire length on the bed. It is provided with ball bearings at each end for taking up end thrust. The carriage carries two tool slides, one with horizontal movement and the other with both horizontal and vertical motion. One of the tool aprons is constructed so as to make a cut in either direction. The reversing is done automatically and very quickly, and provision is made for starting and stopping by hand. The driving mechanism is held on a gear frame rigidly attached to the bed and bolted to the foundation.

This machine is driven by an electric motor direct coupled to the driving mechanism. A special automatic controller is used for starting, stopping and reversing the motor, and to protect it under all conditions. The motions of the carriage are governed wholly by the direction of the rotation of the motor, and the power required by the motor is, at all times, exactly proportional to the work done by the machine. The operator controls the machine either at the carriage or by lever at the motor. The performance of the motor is entirely independent of the quickness or slowness with which the lever is thrown. On this machine provision was made for pulleys also, and the motor is connected to the driving mechanism by a friction clutch, so that the machine can be driven either electrically or by belt.



THE NILES HEAVY PLATE PLANING MACHINE.

American-Asiatic Association of Japan.—The State Department has received from Consul-General Gowey of Yokohama a report of the organization in that city of a society of American citizens under the above title. The constitution adopted sets forth the following as the objects of the association: "To foster and safeguard the commercial and other interests of citizens of the United States of America in Japan. To promote a beneficial acquaintance and association among Americans in Japan, and by union and permanent organization to give more effective aid in behalf of measures intended to advance such interests. To gather and distribute information of importance to its members. To act in concert with, and aid in the purposes of, the American-Asiatic Association of New York and the American Association of China, and such kindred associations as may be hereafter formed in the Orient." Any American citizen of full age, resident or temporarily resident in Japan, is to be eligible to membership. The annual dues are to be 10 yen ($4.98), payable annually in advance on the 1st day of July in each year. There will be an annual meeting of the association in the city of Yokohama during the month of October in each year.

Extension of the Lalance & Grosjean Mfg. Company's Factory.

The additions to the factory of the Lalance & Grosjean Mfg. Company, at Woodhaven, L. I., are making quick progress toward completion, and it is expected that the new buildings will be ready for occupancy by October 1. As before reported, the new portion of the company's plant will be devoted exclusively to the production of enameled ware, giving a daily capacity of over 125,000 pieces, as against 60,000 pieces, the present enameled ware capacity of the factory. This addition, when in working order, will entail an increase of about 65 per cent. in the number of employees. The company are at present far behind on their deliveries of enameled ware, the sales of which this year have been enormously ahead of any previous season in the history of the business. Thus the added capacity of production is urgently needed. The new buildings are of brick, covering an area of 200 x 400 feet. They consist of an enameling shop, 160 feet wide by 400 feet deep, and a three-story structure, 400 feet long and 40 feet wide, to be used for finishing and packing the stock. When completed the works of the Lalance & Grosjean Company will cover five blocks on Atlantic avenue, bordering on the line of the Long Island Railroad.

The firm of Lalance & Grosjean, established in New York in 1850, were the pioneers in the manufacture of enameled ware in this country. Their first manufacturing plant was erected in Woodhaven about 1856, which by 1876, when it was destroyed by fire, extended over considerable ground. The works were immediately rebuilt and their growth has never been checked. All the sheet iron and steel and tin plate used in the Woodhaven works are produced at the company's rolling mills and tin plate works at Harrisburg, Pa. While enameled sheet metal wares, particularly nickel-agate-steel ware, is the specialty of the company, they manufacture as well all kinds of sheet metal wares, seamless and pieced, finished by planishing or japanning, and also a full line of plain and retinned stamped wares, milk cans, seamless sheet steel sinks, &c.

Advices from Sydney, Cape Breton, state that another large iron and steel works, eclipsing even the big Whitney plant now being erected at Sydney, is to be established at North Sydney. Information has been received from England that the Nova Scotia Steel Company of New Glasgow, N. S., and the General Mining Association

will be consolidated. The latter are the oldest coal company in Cape Breton. Their mines are at North Sydney. The new concern's plant at North Sydney, it is said, will include a shipbuilding plant, steel rail plant and dock. The company own iron mines at Belle Isle, Newfoundland.

Mining and Engineering in Greece.

The economic development of Greece has not been impeded by the events of 1897. On the contrary, it seems to have made satisfactory progress. The imports show a considerable increase, and the exports, on the other hand, show an increase more or less important either in quantity or price.

Great activity prevailed in the mining and engineering industry of Greece during the year 1898. Though the exchange on an average was only 146 drachmes for 20 cents American currency, as against 156 drachmes in the previous year, yet the mine owners did not suffer any loss, as this difference was fully equalized by the higher prices paid for ores. Furthermore, the confidence regained by the favorable rearrangement of the public debt had an enlivening influence upon the industrial activity of the country. The mining industries, generally speaking, are chiefly carried on so far on the small islands of the Cyclades and near the coast lines, places whence the transportation of the ores can be effected by the most simple means. The Greek Government is well aware of the fact that something must be done with regard to the development of the mining industries, and has recently granted quite a large number of mining concessions. While during the period of 1882 to 1891 no concessions were granted at all, and from 1891 to the end of 1898 only five concessions were granted, during the first six months of the present year 36 concessions have been granted, chiefly for iron ore, manganese ore, argentiferous lead, zinc, copper ores and coal.

Most prominent among these concessions are the following:

Province.	District.	Description of ores.	Area in stremma.
Attica	Thorico	Manganese iron, silver lead, and zinc ore	138
Attica	Athens	Lignite coal	12,888
Thessaly	Ferres-Volo.	Manganese iron, silver lead, and zinc ore	9,916
Milo	Siphno	Manganese iron, silver lead, and zinc ore	23,001
Zea	Kythno	Manganese and hematite iron ore	3,085
Syra	Mykono	Manganese iron, silver lead, zinc and copper ore	24,487
Zea	Kythno	Manganese iron, silver lead, zinc and copper ore	7,843
Syra	Ios	Manganese iron	28,735
Carysto	Skyros	Manganese iron	3,198
Carysto	Stoura	Manganese iron, silver lead, zinc and ochre ore	12,032
Spezzia	Kranidio	Iron and copper ore	5,561
Carysto	Cotyleon	Lignite coal	3,132
Locris	Larimna	Iron ore	836
Naxos	Paros	Iron and manganese iron ore.	7,718
Xyrochori	Histiea	Magnesite (white stone)	710
Epidaurus	Vatica	Manganese iron and iron ore.	26,071
Calamata	Alagonia	Silver lead, copper, manganese iron ore	7,878
Santorin	Amorgos	Iron and zinc ore	17,999
Phthiotis	Macricomi	Coal	1,665
Corinth	Cleones	Coal	3,211
Bœotia	Chalkis	Manganese and hematite iron ore	5,506
		Total	205,668
		Or about 51,000 acres.	

A survey has been made of the last concession mentioned in the above list, which lies in the Gulf of Eubœa, near Metochi village, and competent mining engineers describe it as the largest mine existing in Greece, the mountains around being supposed to be a mass of hematite ore, which could easily be worked and exported, as there is a safe port near at hand. Soundings have been made at several points, and there are indications that the same strata of ore continue up to Thebes, and new applications for concessions are constantly submitted to the Government.

This mine covers a very large area, but, unfortunately, owing to the presence of a large percentage of silica, the ore will not be marketable unless carefully treated, so as to separate the iron ore from the silica, and to accomplish this it will be necessary to have crushing and washing machinery, the ore being made up into blocks for export.

The following table shows the production of the Greek mines in 1898 and 1897. Brown coal, plaster paris, sulphur, talcum and commercial lead were entirely consumed in the country itself; salt, also, was almost entirely taken by the home market; only 280 tons were exported to the island of Crete. Millstones and Puzzolane earth and all other products were shipped abroad.

The production was as follows:

	1897. Tons.	1897. Value.	1898. Tons.	1898. Value.
Iron ore	260,828	$379,500	287,100	$430,200
Manganiferous iron ore	182,850	500,000	213,938	641,800
Manganese	11,868	73,600	14,097	90,200
Zinc blende	3,118	58,800	1,139	22,300
Calamine, roasted	22,817	489,200	30,906	561,400
Chrome ore	563	8,100	1,367	18,000
Magnesite, raw	11,311	39,500	14,829	54,100
Magnesite, calcined	686	6,040	129	1,116
Magnesite bricks	826	18,160	516	11,350
Emery	3,024	64,400	2,932	83,700
Salt	20,421	308,350	25,250	363,600
Lignite	20,018	40,000	17,300	34,600
Puzzolane earth	42,600	38,400	70,700	72,120
Lead dust	2,785	26,340	2,655	27,200
Argentiferous lead	15,946	1,524,800	18,888	1,832,000
Commercial lead	520	33,900	305	21,600
Graphite	2,815	125,000	.....	.....
Miscellaneous	.....	4,705	.....	15,144
Totals		$3,746,295		$4,280,430

It will be seen that the value of the total production in 1898 increased by about $500,000 over that of the previous year.

As to quantity iron ore takes the lead. The exports amounted in 1898 to 287,100 tons, with an average of 52 per cent. of iron. Of these exports there came from:

	Tons.
Seriphos	155,500
Marathon	110,200
Island of Kythnos	12,600
Island of Kea	5,100
Island of Kimolos	1,700
Haidari, near Athens	2,000
Total	287,100

Of late the exploitation of iron ore deposits has also been started on the islands of Syra, Siphlos, Paros, Amargos and Jos, and it is expected that one or the other of these isles will soon participate in the export trade.

The demand for Greek iron ore grows constantly. While in former years Great Britain and Germany were the principal markets to which Greek iron ore was exported, recently the blast furnace of Servola, near Trieste (Austria), has become a good customer. In 1898 no less than 40,000 tons were shipped to Servola, and as these works are about to increase their capacity largely they will doubtless continue to remain leading customers of Greek ore, at least as long as the importation of ore from Bosnia is hampered by the enormously high cost of transportation.

Since 1898 the market price of zinc has been steadily increasing, and thus has had the most beneficial influence upon the production of calamine in Laurium. In 1894 the production had fallen to its lowest level of 19,800 tons, but in 1898 it rose again to 36,650 tons, an increase of 8000 tons over 1897. As the cause of this high price is by no means of a passing nature, it may be supposed that the export figures will soon again reach those of the eighties, at least as far as the quantity is concerned (50,000 tons). On the other hand, the high percentage (60) of zinc in calcined calamine is hardly likely to occur again; at present it amounts to a trifle over 40 per cent. Of the total output of 30,906 tons, 250 tons came from Antiparos, where a small plant is worked.

It has also been found that on the island of Syphnos there are some deposits of calamine, which could be worked with a certain profit if it would be possible to utilize the zinc bearing iron ore, which ore occurs in the same veins.

It may be said that, generally speaking, manganese ore deposits occur in many districts of Greece, especially in certain beds of the extensive tertiary formation in Attica, Bœotia, Eubœa and in the Pelloponnesus; but, as a rule, they are so poor and siliceous that up to the present time their working has met with no success. Only on the island of Milos manganese ore is extracted from tertiary volcanic tuffas. By a simple washing process the ore is separated from the tuffa and quartz and a salable product is obtained, which, however, is not of an excellent quality. An English-Belgian enterprise has for some time been exploiting manganese deposits on the island of Andros, but so far without any remarkable success.

Turning to the state of engineering in Greece, it may be said that there are now nine engineering works at the Piræus, capable of making engines of 1000 horsepower, large castings and all other kinds of machinery. The first engineering works at the Piræus were started in 1862, since which time this industry has made great progress, and the works are now able to undertake a higher class of production than formerly.

The shipbuilding yards, although only started about ten years ago, have built over 100 steam vessels, varying from 20 to 600 registered tons, and undertake all kinds of extensive repairs, which are executed in a thoroughly satisfactory manner.

Most prominent among the great engineering works

are the establishments of the Basiliades Company, especially engaged in the manufacture of vessels and steam engines. This company have built a large number of small trading steamers for the Balkan States. Last year they turned out the first locomotive ever built on the Balkan Peninsula, and as the engine gave the fullest satisfaction the Basiliades Company are now about to enlarge their works for the special purpose of starting locomotive building.

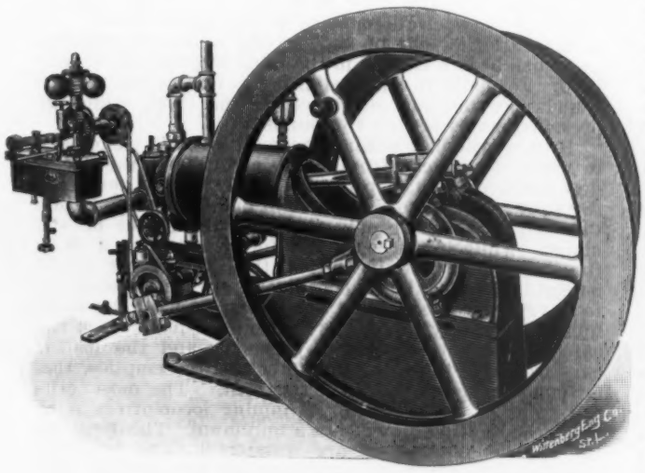
The Vulcan Engine Works, also at the Piræus, are the property of McDowell & Barbour, and have been very busy during the last few years.

The Peloponnesus Railway Company and the Athens-Piræus Railway Company also have their repair shops at the Piræus.

In spite of the enormous freight cost in proportion to the value of the articles, the distance and absence of direct communication, American manufacturers have successfully put on the Greek market such articles as crucibles and iron tubes, which, up to some time ago, were "British specialties" in Greece.

The Lamos Gas and Gasoline Engine.

In the gas and gasoline engines built by the Keystone Iron Works of Fort Madison, Iowa, the valve mechanism is separate from the cylinder. The piston can accordingly be gotten at without the possibility of anything being thrown out of gear. The controlling device



THE LAMOS GAS AND GASOLINE ENGINE.

consists of a Gardner steam governor in combination with a coil spring, and although operated in unison they may be employed independently. Should the governor belt break the idler wheel journaled at the end of the safety lever will drop and securely seal the gasoline or gas supply valve and prevent the engine from running wild. It is claimed that no danger exists of flooding the cylinder with gasoline, as the mixer is provided with an overflow connected by a return pipe to outside supply. A throttle valve admits gasoline to the mixer box, delivering it against a glass plate so placed that the amount entering the mixer may readily be seen at all times. After mixing the control of the governor takes place the same as in steam, resulting in charges light or heavy, and not in full charge or no charge. As consumption is therefore regular the claim is made that no obnoxious unconsumed gases are discharged from the exhaust pipe. The mixing box may be used for either gas or gasoline, and can be applied to any engine whose valves are mechanically raised. These engines are made in a number of sizes from 1 to 50 horse-power, and designed for stationary, portable or marine use.

The annual meeting of the American Association for the Advancement of Science was opened at Columbus, Ohio, on Monday. In his address President Orton reviewed the important discoveries of science in the nineteenth century.

The annual recurrence of forest fires in Northern New York has been aggravated this summer by a prolonged drought in that region. Vast areas of timber in the Adirondacks have been destroyed within the past two weeks. The fires were checked, however, early this week by welcome rains.

Modern Mine Haulage.

Harry K. Meyers has contributed a paper to the Engineers' Club of Philadelphia, in which he deals with some of the recent achievements in improving haulage methods in mining.

Of the various forms of haulage—viz., rope, steam locomotive, compressed air and electric—the first two have been used for a number of years. The wire rope haul has been rather efficient, especially in straight headings and where the grades are heavy and against loads, but in the various attempts to use them in crooked gangways the cost of renewals has been very great. The mining type of steam locomotive has been used considerably, but with the perfecting of mining laws and the generally poor results obtained, they are fast going out of use. The depression of business during the past year caused mining companies to examine modern methods, that they might secure a saving in this item of cost.

About 20 years ago the question of compressed air haulage in mines came up for consideration, but with the low pressure then advocated the range of the locomotive was such that very few plants were installed; yet in that form it was a great improvement over the original tandem compound—viz., a string team of mules. The only disadvantage in compressed air haulage is the size of the storage tanks. As built at the present day for ordinarily heavy work they have the following dimensions: Hight, 5 to 5 feet 6 inches; width, 6 to 7 feet; length, 16 to 22 feet. During the past ten years much discussion has arisen as to the merits of the forms of compound locomotives, but not until about two years ago was any attempt made to apply this principle to pneumatic locomotives, when the Baldwin Locomotive Works agreed to build for the Philadelphia & Reading Coal & Iron Company a Vauclain compressed air locomotive, with the following dimensions: Diameter of high pressure cylinder, 5 inches; diameter of low pressure cylinder, 8 inches; length of stroke, 12 inches; diameter of drivers, 24 inches; wheel base, 54 inches; weight, 22,000 pounds; capacity of storage tanks, 160 cubic feet; line pressure, 800 pounds; tank pressure, 600 pounds; working pressure, 200 pounds.

It was the intention to have this locomotive do the work of 14 mules, and after a series of delays the plant was completed and the locomotive was thoroughly tested, much to the satisfaction of both builder and purchaser. After a most thorough trial of 18 months two other plants were ordered, and at the present time another large coal company are having two similar plants installed.

The economy of the compound over the simple expansion of this type is, 1, That the full expansive effect of the air is realized; 2, on account of the large combined cylinder surface, new energy is imparted to the air from the surrounding atmosphere; and, 3, in the practical use of the locomotive.

In making the calculations for air consumption the various cut offs are considered, while in the use of the locomotive the engineer invariably cuts off later in the stroke than necessary and hence exhausts at high pressure with simple cylinders; but with compound this exhaust is caught in the low pressure cylinder and utilized. The best practical example of this saving, which is fully 50 per cent., is shown in the use of compressors of same size and make. Where the simple cylinders are used it is impossible to keep a supply of air, whereas with the compound the compressor is running half-speed most of the time and the pipe at maximum pressure. On account of the high pressure carried, many people are fearful of the results from explosions and go so far as to say that the factor of safety with such pressures should be greater than with low ones, but this is not the correct idea. These pressures are a maximum which it is difficult to maintain and almost impossible to exceed, hence the possibility for explosion is scarcely to be considered; while in low pressures it is easy to excel and hence increase the possibility of explosion. It is, therefore, considered good practice to use a factor of safety of three in designing the storage tanks. In the compression of air it is impossible to get the ideal; hence in compressing 100 cubic feet of free air we get practically 3 cubic feet at 750 pounds, instead of 2—the theoretic amount. If this air is expanded adiabatically, we will have 75 feet free air, or a loss of 25 per cent. It is customary to base calculations on adiabatic compression and expansion, but in the use of high pressures the errors are such that we must work with closer values if we desire reliable results.

In order to show the working of a Vauclain compound air locomotive we will refer to the records taken at the Alaska Colliery of the Philadelphia & Reading Coal & Iron Company: On October 20, 1897, the average of 12 trips was 26 empty cars, weighing 75,000 pounds, hauled up an average grade of 1.4 per cent. 2400 feet

long, with an average indicated horse-power of 49.4 and an air consumption of 114 cubic feet at 200 pounds pressure. In practice this would require 9 cubic feet at 750 pounds, or 300 cubic feet free air, and to compress same would require approximately 95 horse-power, thus showing an efficiency of over 50 per cent. for the entire system. Had the air been compressed to 200 pounds it would have only required 57 horse-power to do the compressing and the efficiency would have been 87 per cent.

For gassy mines this is the only form of haulage, and since it is necessary to have sufficient storage capacity to charge the locomotive almost instantaneously, it is customary to extend the pipe line sufficiently far into the mine so that it may act as a reservoir and at the same time afford charging stations at convenient points or for future demands.

About the time of the introduction of electricity into street car service it became a question for discussion among the mining people as to its practicability for their use. In the early days the failures were numerous, due principally to the inability to fully understand the various freaks of motors and kindred troubles. The system in general was looked on with suspicion, and considered entirely theoretic, and with the rough usage of mine machinery considered entirely of too dainty a nature for practical use. The dangers arising from its use were also detrimental to its installation, but this has all passed away to such an extent that bare wires are now used for feed wires. On account of the methods for supporting these wires, it often happens that they fall down and cause serious accidents to mules. In the use of 250-volt current it is found that simple contact does not kill the mule, but if he falls on it he is certainly killed.

Of the many electric haulages installed during the past five years, very few of them have been of 500 volts, due principally to the fear of the high tension; yet the number of accidents from this voltage is no greater proportionately than for the low, and when it is considered that in the low the amount of feed wire is greatly increased, the chances for fallen wires and danger from contact are also increased.

The numerous accidents to mules coming in contact with these wires raised a demand for some sort of a system whereby the animal will become an unnecessary evil in the operation of a mine. To construct a bonded track and stretch a trolley wire to the face of all workings would be too expensive for general mine practice, and, in consequence, it is the custom in some mines to use a small mine wagon and have the miner push it to and fro from face to parting, from which place it is taken with the locomotive. In order to eliminate the mule from the mine and haul from the face of all workings a combined storage and trolley locomotive has been devised, whereby the heavy work on headings is done from trolley, and while so running the attached battery, which is carried in circuit, absorbs sufficient current to do the necessary room work. Such a locomotive, the only one of its class, was built by the Baldwin-Westinghouse combination for the Southwest Virginia Improvement Company, having the following dimensions: Gauge, 36 inches; width over all, 42 inches; hight, including battery box, 44 inches; length, 124 inches; weight, including battery, 9000 pounds, and electric equipment, two 10 horse-power motors. This locomotive was designed to haul on the level one loaded car weighing 9000 pounds on storage, and was accordingly equipped with 90 5-D. cells, and having mounted therewith a special battery circuit breaker, &c.

After the locomotive was built the mine manager changed his plans and concluded to try it in a part of the mine where the battery would be required to handle loaded cars up a 4 per cent. grade and empties up 8 per cent. In addition, the trolley line was an extension of the feed line for some 10 or 12 mining machines, in consequence of which the voltage varied from 110 to 200 and the battery would either feed back into the line or throw the circuit breaker. In order to prevent the latter, it was so adjusted that it would not fly out, and the battery was virtually short circuited a large number of times each day without any bad effect. With this condition of affairs it was impossible to hold sufficient current in the battery to do the desired amount of room work, and it became necessary to stop a total of about 30 minutes each day for renewals. It must be remembered that this work was under the supervision of a mine foreman unacquainted with storage batteries. Having gone to such extremes in the use of this locomotive, it was suggested that a new and independent feed line would be a great improvement; it was installed with marvelous results. The voltage became constant, and the battery often discharged for a short time at three times its rated capacity; yet the work has been ideal, and after almost three months' service there is no appreciable wear on the battery. It produces a tractive effort up to the point of adhesion of the locomotive when working on storage, and the regular work is to take 17 empties weighing 60,000 pounds, including locomotive, from side track up a short 1 per cent. grade, then down a 4 per cent. to a level, from which place it starts to distribute in rooms having a maximum of 8 per cent. in favor of loads. After distribution it proceeds to collect the loads in trips of two cars each, on account of the 4 per cent. grade against loads on heading, and deliver them to the side track while working on trolley. In this manner this one locomotive is capable of delivering to this side track, over an average round trip haul of 4000 feet, 200 loaded wagons daily direct from face of workings, which is the work, under existing conditions, of 12 mules and 8 drivers. It is the intention to place a night force, and if sufficiently large, the saving will be the care of 24 mules and time of 12 men, or an amount equal to $8000 annually.

This same company have placed an order for six more of the same class of locomotives, and are considering the matter of constructing heavier ones of the same kind to take the place of steam locomotives now in use, but which are very injurious to both the ventilation of the mine and the timber work.

In general it costs from 6 to 10 cents per ton to deliver coal from face of workings to shaft, slope or tipple, where the haul is 1 mile and the tracks approximately level; yet I have in mind three mines which at present haul from parting with the trolley system, the miner delivering from face of room, making an average round trip of 9000 feet at a total cost of 1 cent per ton. These mines have never had a mule in them, and it would be almost an impossibility to introduce them, for the reason that the seam is of such thickness that the clearance between tie and roof is only about 4 feet.

Since the advent of the electric mining locomotive there has been a change in the mine wagons universally used. Formerly it was customary to find as much as 60 pounds per ton car resistance on the level, while at present it is as low as 15 pounds.

In dimensioning mining locomotives it is customary to make the weight from six to eight times the necessary tractive effort, dependent entirely on the nature of the work. If the work is constant and a maximum, then the weight would be only six times the torque of the motors, while if the work is intermittent with a short time maximum tractive effort, then the factor would be eight. For maximum continuous work it is necessary to have a grade such that the efforts to haul the same number of empty wagons as loaded are equal. With the car resistance considered 1 per cent. and the loaded cars weighing three times as much as the empties, this is found to be one-half of 1 per cent. The most critical point in the desiguing of mining locomotives is to make the limiting dimensions a minimum. The demands for various dimensions are wonderful. The headings in mines are never of more generous proportions than really necessary, and all clearances a minimum. The minimum dimensions for mining locomotives are as small as 2 feet for wheel base, 8 feet for length over all, and 3 feet width. Scarcely two orders carry the same dimensions, and it is impossible to have any kind of a standard. In consequence of this it is necessary to have a great variety of motors suitable for guages as narrow as 18 inches and for wheels as small as 20 inches in diameter. With such a variety it becomes possible to construct a locomotive weighing 40,000 pounds on 3-foot gauge, having the width over all 62 inches; hight, 35 inches, and length, 12 feet. In such construction it is necessary to have the most modern form of motors and the most rigid mechanical construction.

The motors now used are of the best possible construction and efficiency. They are of the slow speed street car type, 6 to 8 miles per hour, winding, and range in size from 4 to 50 horse-power. It is customary to use the rheostatic type of controller for mining locomotives on account of its small dimensions and apparent efficiency for this class of work, but it is doubtless but a short time until a very compact form of series parallel type will be devised. On account of the use of this rheostatic controller it becomes necessary to provide for large diverter capacity, and since the locomotive is designed for the maximum tractive effort, it is hardly ever possible to run without resistance, and hence a large amount of current must be dispersed with the consequent heating.

The demands for mining locomotives come from all quarters of the globe, thus showing that engineers in every section are awake to the fact that modern mechanical appliances are an absolute necessity in the art of mining.

In order that a comparison may be made between a mule and a locomotive, I have deduced from practical observation that the former as well as the latter can produce a tractive effort of one-fifth its weight for a maximum and one-seventh for regular work, thus showing that the mule is a very efficient machine so far as

effort is concerned, but very deficient as to speed. In conclusion I would say that it is my belief that in the very near future compressed air and electric locomotives will as thoroughly displace the mule in mines as they have the horse in street car service, and although I have no desire to oganize a crusade against this noble servitor of man, yet the demands of the investor for increased capacity with decreased cost are such that there is no other alternative than to accept the inevitable and adopt modern methods and install the most modern machinery.

Enormous Railway Earnings.

In view of the enormous traffic during the first half of the present year, a good showing as regards the returns of railway earnings was naturally looked for. That expectations in this respect will not be disappointed is gathered from the returns of gross and net earnings of leading railroads for the six months ended June 30 last, published by *Bradstreet's*. Briefly summarized, they point to the largest aggregate volume of gross and net earnings alike ever reported for the period under review, indicate progressive gains over corresponding periods of preceding years for some time back, and —most satisfactory feature of all—show greater relative progress in the second quarter of the year than in the first, foreshadowing, in view of present crop and business conditions, an exceptionally satisfactory exhibit for the calendar year. The gross earnings of 133 roads for the six months ending with June aggregate $437,047,665, an increase of 6.7 per cent. over last year, and net receipts show an even greater relative gain, the aggregate net earnings of the same systems being $131,138,553, an increase of 8 per cent.

As showing the character of the improvement which has come over railroad affairs in the past few years, it may be stated that the gain of nearly 7 per cent. in gross and of 8 per cent. in net earnings follows progressive gains in 1898, 1897 and 1896 over preceding periods. In net returns, for instance, leading railroads of the country showed a gain of nearly 15 per cent. in 1898 over 1897, that year's returns in turn showing a gain of nearly 5 per cent. over 1896 and the latter year again marking an increase over 1895, pointing to steady and continued growth for at least four years past. Though showing the largest relative improvement in gross receipts alike for the first and second quarters of the year, the coal roads did not do relatively so well in net receipts. In this latter respect the Southwestern roads showed an increase of 21 per cent. The Eastern roads come next in proportion of gain in net with an increase of 12.6 per cent., followed by the coal roads with 10.8 per cent. gain, the Southern roads with 10 per cent. gain, the Central-Western roads with 9.6 increase, and the trunk lines with 5.3 per cent. gain. The grangers and the Pacific roads show the smallest increases, ranging in the neighborhood of 2 per cent. each. Only six systems show decreases, the aggregate for them being especially small. Further illustrative of the favorable features above referred to is the fact that five-sixths of all the roads reporting show gains in gross and fully two-thirds of all the systems show increases in net.

Professor Blake, an electrical expert of the University of Kansas City, Kan., who has been studying the effects of electrolysis upon water mains and gas pipes, is reported to have discovered some places in Kansas City where an incandescent lamp can be lighted by simply attaching it to a fire hydrant. He is also reported to have found that in the middle of the Missouri River, half a mile away from the trolley, there was a slight voltage. Some of the water pipes taken up seemed ready to crumble to pieces, and the effects of the electricity were plainly visible. In the office of the water company a piece of thick iron pipe is exhibited which has been so affected that it is possible to penetrate the metal with the blade of a penknife.

A syndicate has been formed and they have purchased 50 acres high land at Burnham, Pa., at which point are located the works of the Standard Steel Works and the rolling mills of the Logan Iron & Steel Company. The syndicate are laying the tract out in good sized building lots and are also erecting some good houses thereon. They are open for bids for sewerage and water pipe connections, any of which should be addressed to A. A. Stevenson, Burnham, Pa., who is trustee for the syndicate.

New York bankers state that merchants are unusually heavy borrowers at the present time. They say it is a long time since the local business houses contracted loans so early in the season, which shows that they expect an early fall business and a great deal of it. The fact that they are willing to pay the high rates of interest now prevailing is a most promising indication of excellent trade prospects ahead.

THE WEEK.

In a British parliamentary paper, just issued, Colonel Gordon, chief engineer of the Soudan Railway, gives a warm indorsement in regard to the thorough manner in which the construction of the Atbara Bridge was carried out by the contractors, the Pencoyd Iron Works of Philadelphia. The fifth span of the bridge was completed on July 17.

A statement to the British Parliament on the Uganda Railway, just published, shows that the line is now completed to Nairoba, 325 miles from the east coast of Africa. The traffic returns are reported as excellent, all things considered. It is said that the railroad has practically extinguished a large carrying trade which formerly passed down to the coast through German territory.

South African advices state that the Transvaal Government is distributing arms to the Boers in anticipation of war with Great Britain. The situation in that quarter is very much strained. Both Governments are actively preparing for a possible conflict. General Butler, commanding the British forces in South Africa, has been superseded and recalled in consequence of his alleged sympathy with the Boers.

Wilfred H. Schoff, foreign secretary of the Philadelphia Commercial Museum, who has just returned from a tour of the South American countries, states that the new branch museum established at Rio de Janeiro, Brazil, under the auspices of the Philadelphia Museum, will be supported by the Brazilian Government. The museum has been permanently installed in one of the large suites of rooms in the fine new Bourse Building in Rio. Exhibits of the most important natural products of Brazil have been brought together, and the directors of the institution are arranging for exhibits of samples of United States goods with the view of promoting trade between the two countries.

United States Consul Magill, at Tampico, Mexico, writes to the State Department that the Governor of the State of Tamaulipas has authorized the city of Tampico to proceed with the construction of a system of water works and sewerage.

Andrew Carnegie has offered $50,000 toward a library building at Steubenville, Pa., where he was employed in his early days as a telegraph operator.

The prospects of a peaceful solution of the Transvaal controversy seem to grow less. The latest cable advices from South Africa indicate the increasing likelihood of war between Great Britain and the South African Republic, President Kruger having declined the demand of the British Government for the appointment of a joint court of inquiry into the grievances of the Outlanders. It is thought that a crisis will quickly be reached.

The entire business portion of the city of Victor, Col., was wiped out by fire on Monday, involving a loss of over $2,000,000. Victor is one of the pioneer mining towns of the Cripple Creek district.

It is reported from Washington that the Navy Department has finally decided that the United States will not purchase the Spanish floating dock now lying in Havana harbor.

The controversy between the Westinghouse Company and the New York Air Brake Company has taken a new turn, the New York Company having entered suit against the Westinghouse Company for $1,000,000 damages for injuries alleged to have been sustained by them in their business as a result of the suit brought by the latter corporation in 1895 on the Dickson and Westinghouse patents. The suit was decided in favor of the New York Air Brake Company, but not until the business of the latter had suffered materially.

A company have been formed in New York City to erect a crematory at Nyack, N. Y., where the rapid consumption of dead bodies will be effected by means of liquid air.

Information Wanted.— A correspondent wishes the address of makers of carpet cleaning machinery.

Who builds machines for making chaplets for foundrymen's use ?

The Iron Age.

New York, Thursday, August 24, 1899.

DAVID WILLIAMS COMPANY, - - - - - - - PUBLISHERS.
CHARLES KIRCHHOFF, - - - - - - - - EDITOR.
GEO. W. COPE, - - - - - - - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - - - - - - - HARDWARE EDITOR.
JOHN S. KING, - - - - - - - - - BUSINESS MANAGER.

American and European Iron Prices.

Naturally it has become a favorite topic with men connected with the iron industry to draw comparisons between the present period of tremendous endeavors and the famous boom period of 1879-1880. Such comparisons are instructive and interesting provided it be clearly understood in what respects present conditions differ from those prevailing in 1880. The principal argument drawn from the comparison heard most is that since in the older boom prices broke suddenly and the whole movement lasted only a short time, therefore our present condition of affairs must be followed by a prompt collapse.

The cardinal fact, whose importance cannot be too much insisted upon, is that in the olden days enormous railroad building and a violent speculation drove our prices far above the importing point, and that the foreign producers, being only moderately supplied with orders, were in a position to supply any deficiency in a very brief time. We were simply flooded with foreign iron and steel.

Now the situation is entirely different. Only a few months since we were considerably below the parity of the world's markets. We had shown a capacity for capturing business which had badly frightened foreign rivals. We could advance our market considerably before cutting off exports, and when European makers finally realized that for the present the incubus of American competition was removed they began to put up values. There has been considerable talk of buying of material in Europe for shipment to this country. It is true that purchases have been made for American account. We know of one case in which about 1000 tons of plates was purchased, but it was done to cover a contract for some plate girders for delivery in Japan.

The fact is that the prosperity in the iron trade is world wide and universal, due to an enormous demand, and, to some extent, to a scarcity of raw material. There is exceedingly little chance of a dumping upon our markets of enormous quantities of foreign material. We must work out our own salvation and find a relief for the congested condition of our works gradually.

Let us examine the contingencies so far as they affect the international situation and our own. The first we must face is the chance of so sudden and violent a drop in prices abroad that foreign material can pay freights and duties and yet be below our own. Apparently there is little fear of this. On the Continent, and particularly in Germany, the works are practically sold up for the whole of next year, and are facing a scarcity of coke, pig iron and steel which has brought them into our markets for material. In England there is more reserve capacity, and it may be that the boom in shipbuilding will soon be over, since the new orders do not seem to be exceedingly plentiful.

Still there are some dangers ahead. Germany has been driving under tremendous pressure. There has been a good deal of speculation bordering on serious inflation, and many believe that a financial collapse may come at any time. The political crisis in France and the possibility of serious complications in South Africa are factors which must not be lost sight of.

One point deserves mention, since it bears by inference upon a possible experience on our part. Prices in the German home markets have been relatively high for a long time and yet consumption has gone on at a steadily expanding pace. Is the effect of high values upon requirements really being overrated with us, too?

Another contingency is that our own markets may keep on advancing until the importing point has been reached, the foreign level remaining as it is.

A third contingency is that our own makers should find it policy to make sacrifice sales abroad, in order to hold customers captured at a heavy cost, and to relieve our own markets of a moderate surplus. Of this, however, there is not the slightest indication now.

A few comparisons of prices may be useful, in order to furnish concrete examples for illustration. At Barrow, Bessemer pig early in this month was selling at $19.12, while in Germany the latest quotation was $19.84. Adding duties and an allowance for freight of $2.50, the duty of $4 would carry the cost to $25 to $25.75, while Bessemer pig in Eastern Pennsylvania is nominally $21 to $21.50.

Foreign steel billets have been quoted lately at £6 10s. c.i.f. New York. Adding the duty of $8.96 we reach a cost of $40.50, while Eastern Billets, at tidewater, for full delivery, are available at $35.25 to $35.50.

Steel rails are quoted in the English papers at £6 5s. at mill. This, duty paid, would make the cost at seaboard $40, when prices for domestic rails, of heavy sections, are $31 to $32, tidewater.

In these heavier products, therefore, there is a very considerable margin on the side of safety. It is somewhat different with some of the other forms of finished iron and steel. Ordinary plates are quoted at £8 per gross ton in Scotland. Adding freight and the duty of 0.6 cent per pound, the cost would figure out about 2.50 cents, which is close to our own quotation.

Beams up to 12 inches were quoted last in Belgium at £6 18s. 9d., or, adding freight, £7 10s., c.i.f., New York, equal to 1.62 cents. Since the duty is 0.6 cent per pound the cost of importation would be 2.22 cents, against 2.15 cents for American steel sections at tidewater.

In some lines of finished materials we are therefore not so far from the point when special considerations might induce moderate importations, although considering all the circumstances it is very doubtful whether any tonnage of consequence could be placed without causing an advance abroad, which would cut off the movement.

Our figures illustrate the situation sufficiently to show prices cannot be pushed up without any reference whatever to foreign markets.

The Crisis in Builders' Hardware.

There has not been for years a period so fraught with interest and of such vital moment to the manufacturers of builders' hardware as at present. For many years the story has been one only of grinding competition that has blotted out several firms, has brought others close to the ragged edge of disaster and has sorely tried even the strongest and best equipped.

It is an economic fact, unfortunately not appreciated by our legislators in general, that unrestrained competition is frequently a serious commercial evil and of no permanent benefit, even to the consumer, for the cheapening of goods is too often at the expense of quality. Never has this had better illustration than in the case

of builders' hardware during the past decade. The fight for business has been fierce and unrelenting. If, in consequence of the pressure of necessity, invention has been stimulated and many economical methods brought into use, yet likewise has much been sacrificed to the sense of cheapness.

Without losing sight of the improvement in taste in designs and finishes, and also in mechanical construction, it can be safely said that the builders' hardware of to-day is in what the jester in Shakespeare called "A parlous state." It is a heterogeneous mass, without order, system or design; a constant multiplication of copies badly done; of many unnecessary and poorly constructed items, with only here and there something of artistic and mechanical excellence rising above the general commonplace chaotic level. We shall never really know how bad it is until some master mind has reorganized and reconstructed it on lines of harmony and design.

This is an entire possibility, and not so remote and hopeless as once it seemed. It can only be possible, however, under a union of those warring forces that have been so industriously seeking each other's dissolution; and, indeed, it will be the inevitable result of such a union. In such a contingency we shall all be very much amazed to discern the natural simplicity, harmony and co-ordination of this most interesting portion of the hardware business.

Fortunately it often happens in the commercial world that when things get so bad as to be apparently hopeless they begin to mend of themselves; so it has been in this instance. A somewhat nebulous and loose jointed lock association has taken on a different hue. A classification of somewhat definite nature has been partially completed; a basis of prices to start from has been agreed upon, and, best of all, mutual understanding and good feeling have been brought about. The crucial period has now arrived; it is either progression or retrogression. To go back to the old ways seems impossible, and to go on can only mean one thing—a closer and more permanent union. Nothing bars this save personality and sentiment; the rest is mere detail. What will the result be? Will the opportunity of a generation, nay, of a lifetime, be allowed to slip by or will there be a concentration and crystallization in keeping with all the tendencies of the times?

OBITUARY.

SENECA M. RICHARDSON.

Seneca M. Richardson, of the firm of Witherby, Rugg & Richardson, manufacturers of wood working machinery, Worcester, Mass., died from pneumonia on August 15, at his residence in that city, aged 69 years. He was born in Corinth, Vt., and learned the trade of a machinist, removing in 1860 to Worcester, where he worked in various machine shops. In 1864, with D. B. Witherby and Gilbert J. Rugg, Mr. Richardson formed a partnership for the manufacture of wood working machinery, taking charge of the mechanical part of the concern. He was actively connected with the business up to the time of his death, leaving it one of the most important industrial establishments of Worcester.

PROFESSOR BUNSEN.

A cable dispatch from Heidelberg, Germany, announces the death at Gottingen in his eighty-ninth year of Prof. Robert Wilhelm Eberhard Bunsen, M.D., the distinguished chemist. The scientific discoveries of Professor Bunsen were numerous and important, and his reputation was world wide. He invented many widely used scientific devices, among the best known being the Bunsen battery, which, until the introduction of the dynamo, was the cheapest source of electricity; the Bunsen gas burner, by which a non-luminous, smokeless but highly heated flame is obtained, and which is now not only indispensable in all laboratory work, but is also used for heating purposes and for illumination by the incandescent system all over the world; the Bunsen filter pump and the photometer, which are also used in every laboratory. But perhaps his most brilliant discovery was that of spectrum analysis and the spectroscope, made in association with his famous colleague, Professor Kirchhoff, which established a new era in astronomy and led to many valuable discoveries in chemistry. The contributions which Professor Bunsen made in the application of chemistry and physics to the arts and manufactures are of the highest value, and his numerous writings are generally used as text books of the science of chemistry. He was born at Gottingen, Germany and studied in the university of that town, devoting himself particularly to physical and natural sciences. Subsequently he studied in Paris, Berlin and Vienna. In 1836 he succeeded Wohler as professor of chemistry at the Polytechnic Institute of Cassel. A few years later he became professor at the University of Marburg and director of the Chemical Institute there. In 1851 he went to the University of Breslau, and in 1852 he passed to the University of Heidelberg as professor of experimental chemistry. There he remained up to the time of his death, having founded at Heidelberg one of the most celebrated schools of chemistry in the world.

JAMES TRANTER.

James Tranter, the founder of Mitchell & Tranter, died at Covington, Ky., on the 17th inst. He was born in Dudley Castle, England, in 1817, and came to this country in 1855. Having engaged successfully in the iron trade in England, he had no difficulty in obtaining a foothold here. He built a rolling mill at the foot of Scott street, Covington, in 1856, and by 1858 had made such progress that Robert Mitchell invested with him in one of the largest rolling mills in the State.

ROBERT RAMSAY.

The death is announced at Kilbride, Scotland, of Robert Ramsay, constructing engineer of the H. C. Frick Coke Company, and superintendent of the Standard Coke Works, at Mount Pleasant, Pa. Mr. Ramsay's health had been poor for some years, and he was traveling abroad in the hope of benefiting it. He was born 58 years ago and came to this country from Scotland at an early age and became, in time, one of the best known mining engineers of the country.

WILLIAM OOTHOUT.

William Oothout of New York City died on August 20, at Baden-Baden, Germany, at the age of 76 years. He was born in New York, and entered business life at an early age, becoming a member of the firm of Bleecker & Oothout. In 1863 he organized the iron and steel importing firm of William Oothout & Brother, located at Cliff and John strets, New York. For the past 20 years Mr. Oothout had lived abroad.

EDGAR W. FROST.

Edgar W. Frost of L. D. Frost & Son, manufacturers of carriage bolts, Marion, Conn., died at his home in that town on the 11th inst., of Bright's disease. Mr. Frost was born in Marion in June, 1864, and acquired his education in the public schools of the town, including the Lewis Academy, and subsequently was graduated from the Connecticut Literary Institute, at Suffield. He became associated in business with his father in May, 1883, and until his health failed took an important part in its management.

PERSONAL.

Julius Herlitschka, manager of the Vienna branch of the firm of White, Child & Beney, importers of American machinery and tools, sails for this country on the 27th inst., where he expects to stay about two months. Mr. Herlitschka will visit his many friends in the tool and machinery trades and will open new business connections. He will also attend the Philadelphia Export Congress as a delegate of the Vienna Chamber of Commerce.

Lord Kelvin has retired from the professorship of natural philosophy at the University of Glasgow, Scotland, after more than 50 years' occupancy of the chair.

George Westinghouse, head of the Westinghouse interests in this country, returned last week from a four months' visit to Europe.

Robert A. Hadfield, who is well known to many in the trade in this country, has been elected master of the Cutlers' Company of Sheffield.

W. H. Morgan, president of the Morgan Engineering Works, Alliance, Ohio, has sailed for Europe. It is

understood that Mr. Morgan will establish branch offices in England, Belgium, France, Germany and Russia.

John W. Cole has severed his connection with the Diamond Machine Company of Providence, R. I.

G. C. Conner has been appointed general manager of the Chattanooga Furnace Company, Chattanooga, Tenn.

Armin Scholte, C.E., of Pittsburgh, has been appointed consulting engineer for the new plant of the Auto-Car Company of that city.

W. J. Rainey, the well-known coke operator, has gone to Europe.

Trinity College, Hartford, has conferred the honorary degree of M.A. upon J. M. Allen, president of the Hartford Steam Boiler Inspection & Insurance Company.

It is reported that Signor Marconi, whose experiments in wireless telegraphy have attracted so much attention, will come to the United States next month.

Gus C. Henning of New York will probably sail for Europe early in September.

J. Mitchell Clark of Naylor & Co., New York and Pittsburgh, sailed for home yesterday.

Machine Shop Equipment for New York Navy Yard.

An official list of specifications has just been issued by the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., for machinery and tools to be installed in the new machine shop which is now in course of construction in the New York Navy Yard, Brooklyn, N. Y. It is said that this is the largest lot of machine tools which has ever been arranged for at one time in this country. The proposals will be opened at the Bureau of Supplies and Accounts, Washington, D. C., on October 10, 1899, and bids will be received not later than 12 o'clock noon on that date. The proposals must be made in duplicate, one copy to be marked "original" and the other "duplicate." Proposal blanks can now be had by addressing the above bureau. When shown a copy of the specifications several members of the machinery trade stated that they thought that the specifications were about the fairest that had ever been issued by either the Army or Navy Department. There are included in the lot 166 machines and a set of 28 hydraulic jacks. The list is as follows:

Planers.

One 96-inch planing machine, to plane 120 inches wide by 96 inches high by 22 feet long. Table to be driven by rack and gearing. In case the table it is proposed to furnish is less than 96 inches wide a complete supplementary rolling table shall be included. This machine is to be operated by separate and independent motor.

One 60-inch planing machine, to plane 60 x 16 inches by 18 feet long. To be driven by independent motor.

One 48-inch planing machine, to plane 48 x 48 inches by 14 feet long. To be operated by independent motor.

One 42-inch planing machine, to plane 42 x 42 inches by 12 feet long. To be operated by independent motor.

Three 36-inch planing machines, to plane 36 x 36 inches by 8 feet long. To be operated by separate independent countershaft.

One 30-inch planing machine, to plane 30 x 30 inches by 8 feet long. To be operated by countershaft.

One 16-inch planing machine, to plane 16 x 16 inches by 4 feet long. To be operated by countershaft.

Boring, Milling and Drilling Machines.

One horizontal boring, drilling and milling machine, spindle 8 inches in diameter, vertical column about 15 feet high, to have longitudinal movement of 14 feet on bed; bed to be at least 20 feet long by 5 feet deep by 5 feet wide.

One portable milling, boring and drilling machine, boring bar at least 4 inches diameter, having automatic feed of 4 inches, to have capacity for cutters up to 24 inches diameter; machine to be so arranged that spindle head can be clamped to work.

One horizontal boring and milling machine, table about 8 feet long, feed of boring bar to be 30 inches, with extension to 60 inches as required, boring bar to be at least 4½ inches diameter. To be operated by an independent electric motor.

One horizontal boring and drilling machine, table about 10 feet long, feed of boring bar to be 36 inches, with extension to 72 inches, boring bar to be at least 6 inches in diameter. All attachments to be operated by an independent electric motor.

One universal horizontal drilling and boring machine, column to have at least 60-inch traverse movement on the base plate and saddle at least 60-inch vertical movement on column; spindle to be at least 6 inches in diameter, with feed of at least 36 inches; table to have movement of 40 inches parallel to spindle; top of table to be 60 x 48 inches. To be operated by separate independent motor.

One universal horizontal drilling and boring machine, column to have at least 40-inch traverse movement and saddle at least 40-inch vertical movement; spindle to be at least 3 inches diameter, 24 inches feed; table to have movement of 30 inches; top of table to be 48 x 36 inches. Machine to be operated by independent motor.

One 30-inch boring and turning mill,, capacity 30 inches diameter by 14 inches hight under the rail and 21 inches under the turret; table to be at least 28 inches diameter.

One 37-inch vertical boring and turning mill, to have capacity of not less than 37 inches diameter, 30 inches hight.

Two 42-inch boring and turning mills, capacity 42 inches diameter by 30 inches in hight; table to be at least 30 inches diameter.

One 51-inch boring and turning mill, capacity 51 inches diameter by 40 inches hight; table at least 50 inches diameter.

One vertical boring and turning mill to take work at least 62 inches diameter, 40 inches hight; table to be about 57 inches diameter.

One boring and turning mill, to swing about 76 inches diameter, 48 inches hight; table to be about 74 inches diameter.

One extra heavy 10 to 16 feet boring mill to swing about 10 feet diameter when uprights are forward, uprights to be moved back by power, permitting turning up to 16 feet diameter by 84 inches high; face plate to be about 100 inches.

One 9-foot universal radial drilling machine, 108 inches from center of column, 52 inches from spindle to table, 78 inches from spindle to base plate; traverse of spindle in saddle 22 inches.

Two 72-inch universal radial drills, post to be 8 feet high, spindle large. Operated by independent electric motor.

Two 72-inch semi-universal radial drills, post at least 8 feet high. To be operated by independent electric motor.

Six 72-inch radial drills, post at least 8 feet high; machine to have tapping attachment.

Three 37-inch back geared power feed drill presses, to have compound table taking 60 inches between base and spindle, spindle 2¼ inches diameter, with traverse of 13 inches.

Eight 30-inch back geared, power feed, vertical drill presses, to have adjustable circular table 20 inches diameter; distance between spindle and base plate, 55 inches; vertical traverse of spindle, 18 inches. Specifications will be considered involving use of head which is vertically adjustable instead of having adjustable table.

Eight 21-inch vertical drills, 10½ inches from inside of column to center of spindle, 50 inches from base plate to drill, 10 inches vertical traverse of spindle.

Six 16-inch sensitive drills, adjustable head to have ⅞-inch spindle, capable of boring ⅝-inch hole; feed, 3½ inches; distance from top of table to bottom of spindle, 15 inches.

Six 13-inch sensitive drills, adjustable head, ¾-inch spindle, capable of boring ½-inch hole, 3-inch feed, 12 inches from top of table to bottom of spindle, 44 inches from spindle to lower table.

One universal milling machine with automatic table, feed of 33 inches, cross feed of 8 inches, vertical movement of knee 21 inches, length of slide bearing for table not less than 13 inches.

One universal milling machine, to have power feed, table to have automatic longitudinal feed of 28 inches, traverse movement of 8 inches, and be capable of being lowered 20 inches from center of spindle and swinging 14 inches in diameter and 26 inches in length.

One No. 2 universal milling machine, automatic table, feed, 20½ inches; cross feed, 6½ inches; vertical adjustment, 17½ inches; centers to swing 10 inches in diameter; take 15 inches in length.

One universal milling machine, automatic, longitudinal feed, 17 inches; transverse movement, 6 inches; vertical movement, 18 inches below center of spindle; centers to swing 8 inches in diameter and take 14 inches in length.

One vertical milling machine, spindle 3¼ inches in diameter, vertical traverse of at least 17 inches, by hand or power, to be fitted with compound table with at least 26 inches longitudinal traverse, 28 inches transverse traverse.

One plain milling machine, table having automatic feed of 48 inches longitudinally, 9¾ inches traverse, and vertical movement 18 inches; to have index centers, oil pump, gear cutting and various attachments.

One No. 2 plain milling machine, to have automatic

longitudinal feed, 28 inches; transverse movement, 6½ inches; vertical movement, 18 inches.

One No. 1 plain milling machine, having automatic feed, 24 inches longitudinally; transverse movement of 6½ inches, and vertical adjustment of 18 inches.

One No. 0 plain milling machine, with automatic longitudinal feed of 16 inches, transverse movement of 4½ inches, and vertical adjustment of 14½ inches.

One nut milling machine for finishing sides of nuts. To have capacity to mill two sides of 12 1½-inch standard thickness nuts at once.

One screw slotting machine for slotting across screw and condenser tube ferrules, slide to be operated with hand lever with 3-inch movement.

Lathes.

One extra heavy 125-inch crank shaft and engine lathe, to swing 125 inches in diameter over bed, 108 inches over the carriages, and to turn 40 feet between centers; power to be applied by independent motor driving the usual cone; front bearing of spindle, 20 inches diameter, 31 inches long; rear bearing, 15 inches diameter, 23 inches long; sliding head to be moved along the bed by power, by a screw, and separate pulley at the outer end, to be fitted with change gears for cutting screw from ½ thread per inch to 10 threads per inch; machine to weigh not less than 280,000 pounds. Bids must be accompanied by scale drawings.

One extra heavy engine lathe, to swing at least 60 inches over the bed, 40 inches over the carriage, and with bed of sufficient length to take 70 feet between centers when one of the tail stocks is removed; two head stocks and two tail stocks complete, so as to be operated with two separate lathes entirely independent of each other if desired. There will be a feed screw and rack on each side of the lathe, one feed screw and rack to turn a piece of work 70 feet in length and the other to turn a piece 30 feet in length. There will also be two carriages complete. Each head stock to be operated by a separate electric motor driving the usual 7-step cone. It is preferred to place the motor beneath the lathe. Change gears to be provided for each end, by which threads varying in pitch from 1 thread in 2 inches to 10 threads in 1 inch can be cut. Bids must be accompanied by scale drawings.

One 54-inch swing, triple geared engine lathe, to have 24-foot bed, to swing 54 inches over the bed, 42 inches over the carriages. Feeds to be positive, gear driven, and to be changeable or reversible without removing gears. All changes of feed to be effected at the carriage.

One 48-inch swing, triple geared engine lathe, to have 20-foot bed, to swing 48 inches over the bed, 37 inches over the carriage. Feeds to be positive, gear driven, and changeable or reversible without removing gears.

One 42-inch triple geared engine lathe, to have 16-foot bed, 42-inch swing over bed, 33-inch over carriage. Positive gear driven feeds, changeable or reversible without removing gears.

Three 36-inch swing, triple geared engine lathes, 16-foot bed, 36-inch swing over the bed, 28-inch over carriage. Positive gear driven feed, changeable or reversible without removing gears.

Two 32-inch swing, triple geared engine lathes, 12-foot bed, to swing 25 inches over the carriage, 33 inches over bed. To have variable automatic feed, changeable or reversible without removing gears from carriage.

One 32-inch swing, triple geared engine lathe, 16-foot bed, 25 inches swing over carriage, 33 inches swing over bed. Variable automatic feed, changeable or reversible without removing gears from carriage.

One 32-inch swing, triple geared engine lathe, to have 20-foot bed, 25 inches swing over carriage, 33 inches over bed. Variable automatic feed, changeable or reversible without removing gears.

Two 30-inch screw cutting engine lathes, 14-foot bed, 30 inches swing over bed, 21 inches over the rest.

Two 30-inch screw cutting engine lathes, 16-foot bed, 30 inches swing over bed, 21 inches over the rest.

Four 28-inch screw cutting engine lathes, 12-foot bed, back geared, 28-inch swing over bed, 19-inch over the rest.

Two 24-inch back geared screw cutting engine lathes, 10-foot bed, 116-inch swing over carriage.

Two 24-inch back geared screw cutting engine lathes, 12-foot bed, 16-inch swing over carriage.

Six 20-inch back geared screw cutting engine lathes, 10-foot bed.

Six 18-inch back geared screw cutting engine lathes, 8-foot bed.

Four 16-inch swing back geared engine lathes, 8-foot bed.

Two 16-inch swing back geared engine lathes, 10-foot bed.

Four 12-inch swing back geared engine lathes, 6-foot bed.

One 14-inch tool room lathe, to have full set of chucks, taper attachment, turret head, compound rest, &c.

Two 20-inch swing brass lathes, to swing 20 inches over the bed, which is to be about 7 feet in length, to have compound turret and chasing bar.

Two 18-inch back geared brass lathes, with screw chasing apparatus, swing over bed to be 18 inches, chasing bar to be fitted with taper attachment, to have 7-foot bed.

Two 16-inch back geared brass lathes, with screw chasing apparatus, swing over bed to be 16 inches, chasing bar to be fitted with taper attachment, 6-foot bed.

Screw Machines, Turret Lathes, &c.

Two screw machines, with wire feed, draw back, collets, for making screws and studs from steel or other metals from ⅛ inch to 1½ inch in diameter. Diameter of hole through spindle, 1¾ inches; diameter of turret, 34 inches; diameter of holes in turret, 1¼ inches; center of holes above slides, 2¼ inches; length that can be milled, 6 inches.

One strapping lathe, weight of machine not less than 600 pounds; hight from table to center of spindle, 7 inches; hight from floor to center of spindle, 34 inches; distance from center to center of pulleys, 35 inches.

One 2 x 24 inch flat turret lathe.

Two triple geared turret lathes, to swing 26 inches over the ways, 16½ inches over the carriage; bed to be about 10 feet long.

Two back geared turret lathes, to swing 22 inches over ways and 13½ inches over the carriage; bed to be about 8 feet 3 inches long.

Shapers.

Two 15-inch post shapers, cross feed 15 inches, to plane 15 inches high, with vertical feed of at least 4 inches.

Two 22-inch post shapers, 20 inches cross feed, to plane work 18 inches high, vertical feed of 5 inches.

Two double 16-inch shapers, with traveling head, to consist of two entirely independent machines upon one bed, capable of being used together or separately, vertical travel of table to be at least 16 inches; one table to have both horizontal and vertical faces for holding work; bed to be 12 feet in length.

Two double 18-inch shapers, with traveling head, each consisting of two entirely independent machines on one bed, capable of being used together or separately; vertical travel of 18 inches; bed, 16 feet in length.

Two 24-inch shapers, with traveling head, longitudinal traverse of table 72 inches; vertical movement of table 20 inches.

One 30-inch draw cut shaper, to have stroke of 30 inches; feed of table block, 9 inches; horizontal movement of table, 30 inches; vertical movement of table, 17 inches.

One portable shaper, 48-inch stroke, 48-inch vertical feed, 72-inch horizontal feed.

Miscellaneous.

One 48-inch portable key seating and slotting machine, capable of making key seat ¼ inch to 2 inches wide.

One 20-inch slotter, 21 inches stroke, compound table to be fitted with 54-inch longitudinal traverse, 44-inch transverse traverse; circular table to be fitted 44 inches in diameter.

One 10-inch slotting machine, to have actual stroke 10 inches, with adjustment for any length and position of cutter bar; compound slotting table to be 24 inches diameter, having rotary transverse and longitudinal power feed.

One special double end grinding machine, one end of machine having table 40 inches by 15 inches; machine to weigh not less than 1300 pounds; distance between wheels, 40 inches; entire length of spindle not over 52 inches; machine to be capable of carrying emery wheels under surfacing table 20 inches diameter by 4 inches base.

One universal cutter and reamer grinder, 18 inches between centers, and taking cutter and shell reamers 6 inches diameter, 7 inches long.

One 5-wheel floor grinder, spindle 48 inches length, emery wheels to be 9 inches diameter each.

One tool grinder.

One bolt point machine for shaping end of ¼-inch to 1-inch bolts.

One bolt pointing machine for shaping end of ½-inch to 2-inch bolts.

One grinder for lathe centers, applicable to any size engine lathe.

Two twist drill grinders, to grind ½-inch to 2-inch drills.

Two twist drill grinders to grind ¼-inch to 1-inch drills.

One combined cutting off lathe and nut and bolt head facing machine, with capacity ¼-inch to 2-inch nuts.

One rotary nut tapping machine.

One bulldozer press, weight 24,000 pounds; cross head

to be 12 inches deep by 60 inches wide, movement of cross head, 20 inches; space for dies, 40 inches; to be operated by independent motor.

One set of 28 hydraulic jacks, ranging from 4-ton 12-inch to 30-ton 18-inch.

A New Southern Consolidation.

Another old iron property is to be revived under the auspices of Rogers, Brown & Co. and Eugene, Zimmerman of Cincinnati, through the consolidation of the Cherokee Iron Company, possessing a blast furnace at Cherokee, Ga., and the Augusta Mining Company, owning a series of brown ore properties in Polk County, Ga., and in the adjacent part of Alabama, including what is known as the Frog Mountain ore property. There are now four shipping mines on the land of the Augusta Mining property with a good deal of mineral area which is to be developed. While it has not been definitely decided, it is probable that the new concern will be called the Georgia & Alabama Iron Company, and that it will be capitalized at $650,000 each of common and 7 per cent. cumulative preferred stock.

Individually Mr. Zimmerman controls the Talladega furnace property and the Broken Arrow coal property. This, while not a part of the new consolidation, will be depended upon to supply the necessary coal for the coke ovens which are to be built at the Cherokee Furnace. The latter is in good shape to start.

MANUFACTURING.

Iron and Steel.

The Andrews & Hitchcock Iron Company, Youngstown, Ohio, will have their No. 2 Furnace ready for blast in a short time.

The Spencer Wire Company, manufacturers of iron and Bessemer steel wire, of Spencer, Mass., are erecting an addition to their works, locating the same at Worcester, Mass.

Union Furnace, at Buffalo, operated by M. A. Hanna & Co. of Cleveland, Ohio, was blown in on August 12. This is the new plant built by Frank B. Baird and his associates. S. S. Hartranft is the manager of the furnace.

The National Wire Company of New Haven, Conn., of which G. R. Wales of Boston is president, are building a rod mill, for which the contract was placed with the A. Garrison Foundry Company of Pittsburgh. The capacity of the mill is to be 100 tons in 10 hours, from 4-inch billets, the 18-inch train being arranged interchangeably to a merchant mill. The greater part of the production will be open hearth steel made in the steel plant now building. It is probable that the company will be making rods early in December.

The Carter Steel & Iron Company of East Tennessee, with principal office at Trenton, N. J., have been incorporated for the manufacture of iron and steel, with a capital of $300,000. The incorporators are Charles H. Baker, Henry U. Coleman of Trenton, N. J., and John N. Adams, Stony Creek, Tenn.

A charter has been issued at Harrisburg, Pa., to the American Iron & Steel Company, with a nominal capital of $1000. The company have purchased several large iron and steel plants at Reading and Lebanon, Pa., and will increase their capital.

The Danville Bessemer Company have been incorporated at Camden, N. J., for the manufacture of iron and steel, with a capital of $1,200,000. The incorporators are Clarence K. Crossan, Charles A. Porter, Jr., W. C. Martin.

The Ohio Steel Mfg. Company, with principal office at Newark, N. J., have been incorporated for the manufacture of steel, with a capital of $125,000. The incorporators are Edmund G. Fisher, H. B. Stewart, John C. Welt, Joseph H. Holroyd and John W. Albaugh, all of Canton, Ohio.

Machinery.

Hyde Bros. & Co. of Pittsburgh, Pa., have recently sold two 250 horse-power Hyde water tube boilers for waste heat to the Republic Iron & Steel Co. for their East Chicago mill.

Announcement has been made by W. J. Carlin and John H. Carlin of the purchase of the interest of Thomas H. Carlin in the firm of Thomas Carlin's Sons, operating foundry, machine and boiler works in Allegheny, Pa. The business will be continued by W. J. Carlin and John H. Carlin, under the old firm name of Thomas Carlin's Sons.

The York Mfg. Company, York, Pa., manufacturers of York ice and refrigerating machinery, have recently received some large contracts for this class of work. Included in this is an order from the Hestonville Ice Company of Philadelphia for a 100-ton ice plant, which will be installed between now and January 1 next. Also from the Honolulu Brewing & Malting Company of Honolulu, H. I., a contract for the refrigerating machinery for the new brewery. The plant will consist of two 25-ton refrigerating machines and 10-ton ice plant. Also from the Duquesne Brewing Company of Pittsburgh for the refrigerating outfit for their new brewery. The plant will consist of two 125-ton refrigerating machines and 50-ton ice plant and the necessary piping for the brewery, which will be of 300 barrels' capacity. From the Standard Ice Company, recently organized in Pittsburgh, they have received a contract for the ice making and refrigerating machinery, and expect to have the plant in operation by December 1. The contract calls for two 150-ton refrigerating machines and a 150-ton ice plant, and piping for 400,000 cubic feet of cold storage space.

Union Mfg. Company, New Britain, Conn., are now occupying a part of the recent important addition to their factory. The new building is of brick and is three stories high, 90 x 36 feet, and is directly connected with their original plant. When fully equipped it will double their present capacity. We are advised that this company have recently obtained a patent for an attachment to their Union drill chuck, which gives it a positive drive, a feature which will be appreciated by mechanics, especially on the larger size chucks. They have also recently put on the market a special valve chuck equipped with ball bearings, which is made in the usual sizes. This chuck is said to operate with less friction, and to be a great improvement over any similar chuck on the market. A lot of this style have been ordered for the Brooklyn navy yard.

A. D. Quint, 8 Clinton street, Hartford, Conn., manufacturer of turret drills and milling machines, has recently taken on more shop room, which will enable him to double his manufacturing capacity. For some time past Mr. Quint has been unable to keep up with orders, but is now prepared to handle them more promptly.

The Tarrant Foundry Company, 58 Indiana street, Chicago, were burned out on the 17th inst. The property was fully insured, but valuable patterns belonging to other parties were burned which will take some time to replace.

Among the rolling mill engine orders taken recently at the Pittsburgh office of the Edward P. Allis Company of Milwaukee, Wis., is one reversing mill engine for the American Steel & Wire Company, at their Worcester, Mass., plant. This engine has two steam cylinders 44 inches diameter by 60 inches stroke. The original feature of this engine consists in placing one of the cylinders in a vertical position immediately over and supported on the same bed plate to which the second cylinder is attached, which latter is placed in a horizontal position. Both cylinders are connected to the same crank pin, which is very large, being 22 inches in diameter. By this means a quarter crank machine using but one crank pin is secured. The E. P. Allis Company have also taken an order for one tandem compound condensing finishing mill engine from the Pennsylvania Steel Company, at Steelton, Pa., which has one high pressure steam cylinder 28 inches diameter, one low pressure steam cylinder 54 inches in diameter, each 54 inches stroke. They have also secured an order from the Chartiers Valley Water Company (South Side), Pittsburgh, Pa., for one vertical 6,000,000-gallon triple expansion pumping engine, which will be built to pump against a total head of 600 feet. The company are also furnishing one cross compound (direct coupled) 1400 horse-power engine to the Pittsburgh & Birmingham Traction Company, having one 30-inch diameter high and one 48-inch diameter low pressure steam cylinder, each 48 inches stroke.

The Pittsburgh Steel Foundry have opened general offices in rooms 405-406 German National Bank Building, Pittsburgh. The new plant of this concern is now under construction at Glassport, Pa., and will consist of an up to date steel foundry with five 20-ton acid open hearth steel furnaces, with all necessary machinery. The concern will make all sizes of open hearth steel castings from the smallest up to 50 tons, and expect to be in operation about October 1 next. The officers are Stewart Johnston, president, formerly general superintendent of the American Steel Casting Company, and Augustus Trump, secretary and treasurer, formerly manager of the steel casting department of the Otis Steel Company, Limited, at Cleveland, Ohio.

The R. D. Nuttall Company, Allegheny, Pa., gear cutters and manufacturers of electric railway supplies, have facilities for turning out very large work in cut gears. This concern recently turned out a cut gear wheel 12 feet in diameter. They are rushed with work and are operating their large shops night and day.

The Barr Pumping Engine Company of Philadelphia have just completed the test of a 10,000,000-gallon vertical triple expansion crank and fly wheel pumping engine at Kansas City, and the engine has earned the builders a bonus by largely exceeding the guarantee. The test was conducted by Mr. Wynkoop Kiersted, engineer for the city of Kansas City, and Mr. William McLaughlin, superintendent of the Barr Pumping Engine Works. The Barr Pumping Engine Company are very busy on this class of machinery as a result of the preference given them owing to the excellent results they have obtained and the high class of machinery that they are turning out.

The Indiana Bridge Company of Muncie, Ind., were recently compelled to close down their plant temporarily, owing to inability to get structural material as fast as needed. This emphasizes more strongly than ever the overcrowded condition of the mills rolling structural shapes.

The Iron and Metal Trades.

The excitement in the Iron markets is growing and is spreading. A very large tonnage of Pig Iron is being placed for 1900 delivery, at advancing prices. The bulk of the sales are for the first six months, but a number of important orders have been placed for delivery far into the second half of 1900, the Southern furnaces leading in these transactions. They have even placed some round lots of Gray Forge in Pittsburgh.

There has been very great activity in Basic Pig Iron. The leading consumers in Eastern Pennsylvania have been covering, the sales aggregating about 30,000 tons, mostly taken by local furnaces. The Southern furnaces are sold up on this grade up to July 1, 1900. It is a very significant fact, recorded by our Philadelphia correspondent, that a heavy demand for Basic Pig for Western points has made its appearance in the East.

It is a fact which does not augur well for the supply of Pig Iron for the Central West for the spring of 1900 that a number of the Lake mining companies are even now announcing to their customers that their allotments of Ore will have to be cut down from 10 to 20 per cent.

In Pittsburgh the scarcity of Bessemer Pig is illustrated by the fact that one of the largest concerns paid $22.50, delivered, for a lot of 5000 tons of Pig, October and November delivery.

Under exceptional circumstances as high as $38 has been paid in Pittsburgh for prompt Steel Billets.

A number of inquiries for Steel Billets for shipment to this country have been forwarded abroad. A new complication has arisen and that is that the prices asked there are such that it is doubtful whether the rate of duty will be 0.4c. per pound or 0.5c.

Following the significant reports of sales of Steel Rails for 1900 delivery in the West, comes now the official statement that a large railroad would purchase 15,000 tons of Rails for next year at $28 at Eastern mill.

Evidence is accumulating that a very large tonnage of unfilled orders will be carried over into next year, not alone in Steel Rails, but also in Structural Material, Plates and other forms of Finished Iron and Steel. In other words the impetus of the current enormous demand will surely carry us over the usually slack winter period.

As for the near future, it is only a matter of getting the material, the price being an incidental question. We know of instances in which buyers have offered to pay a premium over contract prices in order to secure prompt delivery.

The negotiations for the shipment of 25,000 tons of Wire Rods to Germany are still pending.

In Pig Iron new sales have not been made for some weeks. What is going forward now is on old contracts. Freights are easier, and $3.25 Birmingham to Liverpool is now the ruling rate.

A Comparison of Prices

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Aug. 23, 1899.	Aug. 16, 1899.	July 26, 1899.	Aug. 24, 1898.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia	**$20.75**	$20.50	$20.00	$10.50
Foundry Pig, No. 2, Southern, Cincinnati	**18.50**	18.25	.....	9.50
Foundry Pig, No. 2, Local, Chicago	**20.50**	20.50	19.50	11.00
Bessemer Pig, Pittsburgh	**22.50**	21.25	20.75	10.50
Gray Forge, Pittsburgh	**19.00**	18.50	17.50	9.25
Lake Superior Charcoal, Chicago	**23.00**	23.00	21.50	11.50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	**36.00**	35.50	34.00	16.00
Steel Billets, Philadelphia	**38.00**	36.00	36.00	17.75
Steel Billets, Chicago	36.80	36.80	.....	16.50
Wire Rods, Pittsburgh	**44.00**	44.00	.....	22.00
Steel Rails, Heavy, Eastern Mill	**32.00**	31.00	29.00	18.00
Spikes, Tidewater	**2.30**	2.25	2.00	1.40
Splice Bars, Tidewater	**2.00**	1.95	1.90	1.05
OLD MATERIAL:				
O. Steel Rails, Chicago	**15.50**	15.00	15.00	7 50
O. Steel Rails, Philadelphia	**18.50**	17.50	17.00	10.00
O. Iron Rails, Chicago	**21.00**	21.00	19.00	12.50
O. Iron Rails, Philadelphia	**21.50**	21.50	20.50	12.00
O. Car Wheels, Chicago	15.50	15.50	15.50	11.50
O. Car Wheels, Philadelphia	**17.50**	17.25	16.50	10 00
Heavy Steel Scrap, Chicago	**14.00**	14.00	13.00	7.50
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	2.00	2.00	2.00	1.15
Common Iron Bars, Youngstown	1.85	1.90	1.85	1.00
Steel Bars, Tidewater	2.20	2.20	2.20	1.10
Steel Bars, Pittsburgh	**2.25**	2.10	2.05	.95
Tank Plates, Tidewater	**2.70**	2.70	2.65	1.25
Tank Plates, Pittsburgh	**2.60**	2.50	2.50	1.15
Beams, Tidewater	2.15	2.15	2.15	1.40
Beams, Pittsburgh	2.00	2.00	2.00	1.20
Angles, Tidewater	2,15	2.15	2.15	1.20
Angles, Pittsburgh	2.00	2.00	2.00	1.10
Skelp, Grooved Iron, Pittsburgh	*2.25*	2.25	2.35	1.10
Skelp, Sheared Iron, Pittsburgh	**2.60**	2.60	2.50	1.17½
Sheets, No. 27, Chicago	3.25	3.18	3.25	2.00
Sheets, No. 27, Pittsburgh	3.00	3.05	3.00	1.85
Barb Wire, f.o.b. Pittsburgh	3.10	3.10	3.10	1.65
Wire Nails, f.o.b. Pittsburgh	2.50	2.50	2.50	1.30
Cut Nails, Mill	2.20	2.20	2.20	1.05
METALS:				
Copper, New York	18.50	18.50	18.50	12.15
Spelter, St. Louis	*5.50*	5.62½	5.65	4.50
Lead, New York	**4.60**	4.57½	4.55	4.10
Lead, St. Louis	*4.52½*	4.57½	4.60	3.97½
Tin, New York	*31.12½*	31.00	31.75	16.20
Antimony, Hallett, New York	9.75	9.75	9.75	9.00
Nickel, New York	36.00	36.00	36.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York	4.55	4.55	4.55	2.87½

Chicago. (*By Telegraph.*)

Office of *The Iron Age*, 805 Fisher Building.
CHICAGO, August 23, 1899.

The demand in all the various lines of Iron and Steel continues unabated, and the general situation is, if anything, stronger than last reported.

Pig Iron.— There is no cessation in the demand for Pig Iron, and judging from the inquiries received there is no apparent reason why prices at present ruling will not be supplanted with much higher figures before the year is out. Consumers appear insatiable, and are covering their requirements well into 1900. It is almost impossible to obtain any respectable amount of Iron for immediate delivery; even the offer of a premium in the shape of higher prices fails to secure attention, for the reason that furnaces are sold up to the end of the year and cannot entertain immediate delivery, no matter how urgent the consumers' needs happen to be. The demand for Lake Superior Charcoal and local Irons is heavy at unchanged prices. Two advances in Southern Iron were recorded since our last report, each advance netting 25c. per ton, making total advance 50c. per ton. We quote for cash as follows:

Lake Superior Charcoal	$23.00 to $24.00
Local Coke Foundry, No. 1	21.00 to 21.50
Local Coke Foundry, No. 2	20.50 to 21.00
Local Coke Foundry, No. 3	20.00 to 20.50
Local Scotch, No. 1	21.50 to 22.00
Ohio Strong Softeners, No. 1	23.00 to 23.50
Southern Silvery, according to Silicon	22.25 to 22.50
Southern Coke, No. 1	20.65 to 21.15
Southern Coke, No. 2	19.65 to 20.15
Southern Coke, No. 3	19.15 to 19.40
Southern Coke, No. 1 Soft	20.65 to 21.15
Southern Coke, No. 2 Soft	19.65 to 20.15
Foundry Forge	18.15 to 18.40
Gray Forge and Mottled	18.15 to 18.40
Southern Charcoal Softeners	20.00 to 22.00
Alabama and Georgia Car Wheel	23.00 to 23.50
Malleable Bessemer	22.50 to 23.00
Standard Bessemer	23.50 to 24.00
Jackson County and Kentucky Silvery, 8 per cent. Silicon	27.80 to 29.00

Bars.— There continues to be an active demand for Bar Iron from all quarters. Jobbers are buying heavily in anticipation of the greatest fall trade the country has ever witnessed. Mills are making shipments as promptly as possible, but considerable complaint is in some quarters heard regarding delays in delivery. Prices on mill

shipments of Common Iron are continued at 1.95c. to 2.05c., Chicago. Sales of Soft Steel Bars have been heavy. Eastern mills quote 2.25c. to 2.30c., Chicago, while local mills continue to quote 2.10c. to 2.15c. In Hoops the demand continues strong, and they are firmly maintained at 2.40c., base, Chicago, for Bands. The recent advance by jobbers on Bar Iron or Soft Steel to 2.40c. is being maintained. Norway and Swedish Iron is quoted at 3.40c. to 3.50c.

Car Material.— Car manufacturers have all the work they can comfortably handle, but are handicapped in making prompt shipments on account of a scarcity of supplies.

Structural Material.—There is nothing to report in the way of large contracts. Mills have well filled order books, and are not in position to accept business for delivery except during the latter end of the year. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15 inches and under, and Angles 3 to 6 inches, 2.15c.; Beams, &c., 18 inches and over, and Angles over 6 and under 3 inches, 2.25c.: Tees, 2.20c.; Universal Plates, 2.65c. Store prices take the usual advance above prices for mill shipment.

Plates.—The demand for Plates is heavy, and some mills are out of the market for the balance of the year. Inquiries are increasing daily. Mill shipments are quoted at 2.75c. to 2.90c., Chicago, for Tank, 3c. to 3.10c. for Flange, 3.15c. to 3.25c. for Marine and 3.50c. to 5.50c. for Fire Box.

Merchant Pipe.— The demand continues very heavy. orders calling largely for mill shipments. Mills quote 50 and two 10's on such business as they are in position to handle. The stocks in warehouses have been so regularly called on that they are nearly depleted. Boiler Tubes are scarce and price is a secondary object on the part of the buyer who needs this class of material. Merchant Steel Boiler Tubes are now quoted in small lots, 1¼ to 1¾ inches, inclusive, 40 per cent. off; 2 to 2¾ inches, inclusive, 50 per cent. off; 3 inches and larger, 55 per cent. off.

Sheets.—There is no change to note in this department. General complaint is heard from jobbers and manufacturers on account of their inability to secure prompt shipment from mills. Mill shipments of No. 27 Black Sheets are quoted at 3.25c. to 3.35c., Chicago, and Galvanized Sheets at 70 and 5 per cent. off, with 15c. freight allowance. Jobbers quote small lots of No. 27 Black Sheets at 3.40c. to 3.50c., and Galvanized at 70 per cent. off.

Merchant Steel.— There is no cessation in the demand for Steel. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.90c. to 3.05c.; Smooth Finished Tire, 2.60c. to 2.75c.; Open Hearth Spring Steel, 3.20c. to 3.30c., base; Toe Calk, 2.95c. to 3.15c., base; Ordinary Tool Steel, 6½c. to 7½c.; Specials, 13c. and upward. Jobbers are asking the usual advances above mill prices.

Billets and Rods.—As local manufacturers have no tonnage of Billets and Rods to offer, there is practically no market; nominal quotations prevail.

Rails and Track Supplies. — Some few sales of Heavy Rails are recorded, but the tonnage is light. Prices are as heretofore, $31 for large lots, and $32 to $33 for small lots. There is an active demand for Light Rails, which are quoted at $30 per ton upward, according to weight, while small lots for immediate delivery have sold at $1.75 per 100 lbs. Track Supplies are quoted as follows: Steel Fish Plates, 1.70c. to 1.80c.; Iron Fish Plates, 2.50c.; Spikes, 2.65c. to 2.70c.; Track Bolts, with Hexagon Nuts, 3.25c. to 3.30c.; Square Nuts, 3.10c. to 3.15c.; Steel Links and Pins, 2.60c. to 2.65c.

Old Material.—There is good inquiry for all kinds of Old Material, and while some diversity of opinion prevails regarding prices, the general feeling is that present quotations are not any too high, as many classes of Old Material are extremely scarce. Old Iron Rails are selling at $21 to $21.50; Relaying Rails are in moderate demand. A sale of 1000 tons of second-hand Steel Rails is reported. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, $21 to $21.50; Old Steel Rails, mixed lengths, $15 to $15.50; Old Steel Rails, long lengths, $15.50; Relaying Rails, $19 to $20; Old Car Wheels, $15.50; Heavy Melting Scrap, $14; Mixed Steel, $12. The following selling prices are per net ton: No. 1 Railroad Wrought, $16; Dealers' Forge, $11.50 to $12.50; Fish Plates, $16.50; No. 1 Mill, $8.50 to $9; Heavy Cast, $13.50 to $14; Stove Plates, $10; Iron Car Axles, $19.50 to $20; Horseshoes, $12 to $12.50; Cast Borings, $6.50; Steel Axle Turnings, $8.50; Iron Axle Turnings, $9; Machine Shop Turnings, $8.

Metals.— Lake Superior Copper continues scarce and carload lots are firmly maintained at 19c. Western Copper is unchanged at 17¾c. Spelter continues to show a declining tendency, and is quoted at 5.75c. to 5.80c., with very little trading. Pig Lead is quoted at 4.60c. for August and September, and 4.55c. for October delivery.

Tin Plate.— The demand is excellent and shipments are coming forward in good shape.

Hickman, Williams & Co., 418 The Rookery, Chicago, are placing on the market High Silicon Pig, manufactured by the Red River Iron Company, Clarksville, Tenn., and are entering orders for prompt shipment.

Philadelphia.

Office of *The Iron Age*, Forrest Building, PHILADELPHIA, PA., August 22, 1899.

The situation in regard to Iron and Steel is extremely strong, and from present appearances prices seem likely to work toward still higher figures. The demand keeps manufacturers on a continual strain, as anything sold at an apparently good figure one week seems too low the week following. There is nothing erratic or spasmodic in these movements, as they arise from a genuine demand, from genuine consumers, and are in no sense speculative or capricious. Prices look high, and after such a tremendous rise as there has been in Iron and Steel it is natural to look for "a getting off place," but there is really no definite reason that can be seen for doing so in the present case. Stocks are virtually *nil*, production is less than consumption, and as the former cannot be materially increased for some time to come the only alternative for easier prices is a decreased demand, which is certainly not in sight at the present time. Buying has been on a large scale during the past week. Consumers are anxious to cover their Pig Metal requirements for the first half of 1900, but with the present outlook producers are not pushing matters, and, in fact, the course of the market shows they are marking up their prices in almost every transaction. All the indications are, therefore, of a bullish character, and this view of the situation seems to be universally accepted for the time being. In the more advanced products the situation is of the same general character as above noted. The shortage is probably felt more severely than in Pig Iron, because Pig Iron can be substituted, but in that respect Finished Material is not so easily handled. Particular sizes, thicknesses and shapes and other requirements usually go with each order, consequently material cannot be supplied from stock, except in the ordinary run of sizes, and it is the want of these special sizes that is causing more or less delay in shipyards, bridge works, &c. Summing up the week's movements in a few words, we should say that the average of prices is higher, the volume of business larger, and the outlook in no respect less favorable than at any time since the forward movement commenced.

Pig Iron.— A very large business has been done during the past week. Almost everything has been in demand. Bessemer, Basic, Mill and Foundry Iron of all grades have been taken in as large blocks as sellers were willing to quote on. The demand is not satisfied yet, and a great deal of negotiating is going on, which can only end by leaving the market in a stronger condition than ever, as buyers are extremely urgent. It may be said, indeed, that the advance all the way through has been due to pressure from buyers. Makers of Pig Iron have never at any time during the movement attempted to manipulate prices, except to check the advancing tendency, but it has been and still is a buyers' market all the way through, and more so to-day perhaps than ever. Anything like lower prices is, therefore, regarded as out of the question at present, the only consideration being how much higher will they go before the top is reached. This is beyond any man's foresight, however, and all that any one attempts to do is to figure on reasonable probabilities for six or eight months at a time, and even then the diagnosis is not regarded as absolutely certain. Nevertheless the indications appear to be tolerably safe for 6 to 12 months ahead, otherwise buying for that length of time ahead would not be as confident as it is, and curiously enough, it is more confident now than it was when prices were less than half what they are to-day. In regard to current quotations it may be said that they vary considerably, although all are agreed on higher prices than at this time a week ago. No. 2 X Foundry Irons for six to nine months' deliveries are quoted at from $21.50 to $22, in buyer's yards, at nearby points, and for shorter dates perhaps $20.75 to $21.50 would be about right, but it is difficult to make quotations to cover everything. Nobody cares much what any one quotes, the whole matter being a private arrangement between buyer and seller—a kind of family arrangement, in fact. Large blocks of Basic Iron have been taken; at least 50,000 tons has been bid for, and pos-

sibly 25,000 to 30,000 tons taken at $21.50, delivered to nearby mills, but there is no more Iron available at that figure. Bessemer Iron has also been sold in large blocks. A considerable quantity of Western has been taken by one large Steel mill, with no indication of a lessened demand for any grade of Iron. General quotations for deliveries here or at nearby points are about as follows: No. 1 X Foundry, $22.50 to $23; No. 2 X Foundry, $20.75 to $21.50; No. 2 Plain, $20 to $20.25; Standard Mill Iron, $18 to $18.50; Basic, $21.50 to $22; Bessemer, $21.50 to $22.50; Low Phosphorus, $25 to $26.

Billets.— Quotations are nominally about $40, but Steel is scarce, so that prices are more or less problematical. Large lots are wanted, and $38 to $39 would probably be paid, but it is doubtful if orders could be placed at less than $40.

Muck Bars.— Dull. A sale was made at about $34.50, but $34 to $34.50, the asking prices, do not seem much of an attraction, so that we quote $33.50 to $34.

Plates.— Quotations are nominally unchanged, but it is difficult to place orders at the inside figures, as mills have a great deal of work on hand, and more offered than they are in a position to accept. Production appears to be steadily increasing, but it makes no impression on the market, as everything goes at full quoted rates, consumers being glad to get material without kicking about prices, the following being very inside figures: 2.70c. to 2.75c. for ¼-inch and thicker; Shell, 2.85c. to 2.90c.; Flange, 3c.; Fire Box, 3.10c. to 3.20c.

Structural Material.— The same old story must be repeated in regard to Structural Material. There is plenty of business at full prices, and buyers are very happy if they can get the promise of delivery within anything like a reasonable time. There is a great shortage, however, and quoted rates are not much of a criterion of what has to be paid for a guaranteed quick delivery. Prices are nominally as follows: Beams and Channels, 2.15c. to 2.25c.; Angles, 2.15c. to 2.40c.; Tees, 2.20c. to 2.25c.; Deck Beams and Bulb Angles, 2.40c. to 2.50c.

Bars.— Prices are very strong. A meeting of the Eastern Bar Iron Association was held here on Friday, but no changes of an official character were made. The minimum price is 2c., base, at mill, but a great deal of business is being done at 2.10c., and it would be difficult, if not impossible, to place much business at 2c., as everybody wants Iron and is willing to pay a slight premium to get prompt shipments. Minimum prices are as follows, f.o.b. mills, at seaboard or nearby points: Ordinary Bars, 1.90c. to 1.95c.; Refined Bars, 2c. to 2.10c.; Test Bars, 2.10c. to 2.20c.; Steel Bars, 2.20c. to 2.30c.

Sheets.— There is a good demand and mills are getting rid of all they can turn out at full quoted rates. Inquiries denote continued activity for a long time to come, as applications are being made for large lots for fall and winter delivery. Prices firm as follows for best Sheets (Common Sheets two-tenths less): No. 10, 3c. to 3.10c.; No. 14, 3.20c.; No. 16, 3.30c.; Nos. 18-20, 3.40c.; Nos. 21-24, 3.50c.; Nos. 26, 27, 3.60c.; No. 28, 3.70c. to 3.80c.

Old Material.— Prices are not materially changed except for Steel, which commands more money. Bids and offers for lots, delivered in buyer's yards, are about as follows: Cast Borings, $11 to $11.25; Wrought Turnings, $12.50 to $12.75; Machinery Cast, $14.50 to $15; Old Car Wheels, $17.50 to $18; Heavy Steel Scrap, $17.50 to $18.50; Steel Rails, $18.50 to $19.50; Iron Rails, $21.50 to $22.50; No. 1 Railway Scrap, $20 to $21; Iron Axles, $25 to $26; Steel Axles, $18 to $19.

Matthew Addy & Co. of Cincinnati, agents of the Tennessee Coal & Iron Company and other important interests of that character, have opened an office in the Real Estate Title Building, Broad and Chestnut streets, Philadelphia. The management of the business will be in the hands of W. W. Heaine, who has been connected with the house for many years, and therefore is amply equipped for meeting the requirements of the position.

(By Telegraph.)

Large lots of Basic Pig have been sold for Cleveland, Chicago and other Western markets. Holders now quote $22.50 to $23 for Philadelphia or nearby deliveries.

The annual convention of the rod mill workers commenced in New Castle, Pa., on Monday, August 21. Edward Jones of Cleveland, Ohio, presided. The wage scale governing rod mills was taken up, and will be under discussion for several days. An eight-hour day for rod mill workers seems to be favored.

Cleveland.

CLEVELAND, August 22, 1899.

Iron Ore.— The end of the present upward tendency of vessel freights for the transportation of Iron Ore must remain purely a matter of conjecture, probably for some time to come. Certainly it is not in sight yet. When a great consuming concern, more than 80 per cent. of whose Ore is covered by season contracts, are willing to pay $1.50 for "wild" boats from the head of Lake Superior some idea of the situation may be imagined. A further evidence is found that another interest, which have this season acquired considerable vessel property outright, have within the past week made charter of four additional vessels for use during the remainder of the season. The peculiar feature of the whole situation is found in the fact that the grain movement has not as yet developed as a very active competitive factor. The Ore shippers have virtually been frightened into bidding against each other in the fear that they will not be able to move all their Ore. The rate from Marquette is close to $1.20 and it would not be surprising to hear within a few days of the payment of $1 from Escanaba. There is already talk of next season's business and vesselmen assert that no season charters will be made at less than $1. The difficulties with Ore unloaders at Lake Erie ports have been tided over by means of a compromise. The men demanded an advance of 2½c. per ton, but finally agreed to accept an advance of 1½c. The new arrangement does away with extra charges to cargoes that do not trim and for cargoes that are in bad shape. The advance will be paid by the dock interests and there will be no increase in the charge to vessels.

Pig Iron.— The anxiety to secure protection in the matter of next season's supply seems to have devolved into something like a mania. Small lots of No. 1 and No. 2 Foundry, upon which immediate or early delivery can be promised, continue to bring as high as $21.50 and $21, respectively. Lake Superior Charcoal and Gray Forge continue as scarce as heretofore. Southern Irons continue to get their share of the business.

Finished Material.— The complications arising from inability to get material continue to be the distinguishing feature of the market. The Pipe market is stronger, although no advance in prices is noted. Some sales agents who hesitated to make the advance in Bar Iron last week have since marked up the quotations. Small consignments of Structural Material for local consumption are the only sales of the week.

Old Material.— The situation shows absolutely no change. Buying is quite free and the supply keeps well up with requirements. Occasional inquiries from Eastern buyers continue to be received in this territory.

St. Louis. *(By Telegraph.)*

Office of *The Iron Age*, 512 Commercial Building,
ST. LOUIS, August 23, 1899.

Pig Iron.— The market has been uninteresting, so far as transactions go. Sales have been made, but for small quantities. Prices, however, have advanced to top prices of last week and the outlook points to further advances before many weeks. Inquiries are not numerous, but nevertheless they exceed the available stock to cover the business in prospect. As in other lines, Pig Iron producers are taking care of their regular patrons in preference to supplying wants of those driven to their furnaces by necessity. Urgent call for shipment on old orders continues. We quote for cash as follows:

Southern, No. 1 Foundry	$20.25 to $20.75
Southern, No. 2 Foundry	19.25 to 19.75
Southern, No. 3 Foundry	18.50 to 19.00
No. 1 Soft	20.25 to 20.75
No. 2 Soft	19.25 to 19.75
Gray Forge	17.75 to 18.00

Bar Iron.— Actual consumption continues beyond capacity of mills to supply. No stocking up is seen anywhere along the line, but on the contrary buyers find sales of finished goods running far ahead of their most liberal estimates for raw material. That Ore and Coal mines are renewing their equipment and developing new workings is seen from the unusual demand for pit cars, rails and mining supplies in general. Heavy consumers, it is found, do not hesitate to make frequent personal trips to mill headquarters in order to more firmly state their needs. Jobbers hold to a base price of 2.40c., full extras, and mill quotations for carloads range from 2c. to 2.10c., half extras, East St. Louis.

Rails and Track Supplies.— The volume of trade has been normal this week. No unusual specifications have been uncovered. We find some makers asking higher prices for Track Bolts than named below. We quote Steel Splice Bars, 1.75c. to 1.85c.; Iron Splice Bars,

2.55c.; Track Bolts, with Square Nuts, 3.25c.; with Hexagon Nuts, 3.40c.; Spikes, 2.65c. to 2.75c.; Steel Links and Pins, 2.55c. to 2.65c.

Pig Lead.—So far as transactions are concerned the market is flat; 4.52½c. to 4.55c. is a fair range to name. The cost of Lead Ore fell off 50c., making the ruling price $27 per 1000 lbs.

Spelter.—Some smelters have withdrawn from the market, claiming that Spelter cannot be sold profitably at to-day's nominal price of 5.50c to 5.55c. No effort is being made to effect sales.

Zinc Ore—Brought $45 per ton for top grade. Smelters, it would seem, are not active, as some little stock is accumulating.

Birmingham.

BIRMINGHAM, ALA., August 21, 1899.

There was a variation in the Iron market last week, and it was toward an increased demand and enhanced prices, the close of the week showing the highest prices that have been reached for long years. And the increased prices only seem to give confidence to buyers, as the orders, which are voluntary, keep coming in regular procession. On Saturday there came one order for 12,000 tons, delivery 1000 tons per month during 1900. The price was furnace price. Then the Soil Pipe interests came in and the aggregate of their purchases during the week was 30,000 tons. The sales of the week aggregated larger than for a long time past. The leading interest during the week booked orders for over 60,000 tons, for delivery during 1900, and could have increased the business had they been disposed. As it was, they simply took care of that which was offered. The orders they have already registered for 1900 delivery foot up an amount appreciably over 200,000 tons. Other interests are confining sales in point of delivery to the first half of 1900, and their order books are fast being filled up. There was one sale to a Western point of No. 1 Foundry and No. 1 Soft at $17 and No. 3 Foundry at $15, both prices net, shipment to commence on part in September and on balance in November, and to continue monthly till completion of order. Terms of sale were B/L with draft attached. Even at these prices and favorable terms the original order was scaled down. Add about 45c. to these prices and you get the price "regular" as if sold in usual way. This sale is not a report, but is taken from original documents and is absolutely so. No comment on the strength of the market could add to the force of this sale. It was made to Iron merchants and may possible have been made to cover a short sale. Gray Forge has sold at $14. Quotations are unsafe below that figure. No. 3 is quoted at $14.25 to $14.50, but one is more likely to pay $14.75 than to get it for less. No. 2 is quoted at $15.50, but the buyer can safely calculate on seeing $15.75 on any accepted order. Basic Iron has sold at $15.50, and if they had the Iron or the capacity to produce it the sales could be quadrupled without crowding the demand. No. 1 Foundry and No. 1 Soft are salable at $17 and Silver Gray is $18. It is a singular fact, yet it nevertheless is true of every market of the character of the present one, that those who thought the market was too high when it was lower now think present prices are justified by the conditions surrounding the market.

Some export room was taken by one interest at $3.25 to Liverpool. This is only 25c. above the lowest point that has prevailed. Room was taken for 2000 tons, but it was old business. The rate shows a weakness in freight and the desire for business. Rates will probably go to $3 to Liverpool.

Some Iron—less than 2000 tons—has gone into warrant yards, but there is nothing significant in that. It was simply a matter of convenience to the buyers in storage, &c. Purchases with the condition of delivery to storage yards were reported to you several weeks ago. Shipments out continue free and the increasing diminution of stocks for the last 90 days shows that production is less than requirements.

The rolling mills have more orders booked than at any previous time in their history and they are running full in all departments. There was a meeting of officials of the Republic Iron & Steel Company at this city on Thursday. Every precaution was taken to prevent any leak as to conclusion, but enough got out to justify the statement that the two additional furnaces so long contemplated at Thomas are determined upon. The only thing in doubt is as to their size. Some say 400 to 500 tons, while others equally as wise say that is too large for this district. Their Steel mill will probably be located at Thomas, because, first, of convenience, and, secondly, if there city taxes will be avoided. At a meeting of the stockholders of the rolling mill at Bessemer it was practically determined to start it in operation on a plan indorsed by the stockholders, and measures have been inaugurated looking to its early resumption of operations. Schemes are being considered and matured concerning some furnace properties and efforts are being made to finance others, that all may be put to work making Iron. But in these matters there are always difficulties and nothing positive can be said concerning the result until success or failure is positively announced. There is a fine opening here for a plant that will make Steel castings and also for one that will produce Spiegel and Ferromanganese. Colonel Shook, at Ensley City, could give all necessary information as to raw material, prospects existing, &c.

North Birmingham anticipates the erection there of the Sloss Steel plant and is preparing for the increased population that will follow. Out toward Gate City the same thing is going on. Then, upon the reorganization of the Elyton Company, a system of improvements and home building will be undertaken that will add attractions and increase values to unproductive property.

There is lots of scheming on foot, a good many trades being negotiated; some concluded, but none announced yet. Interest seems to be but fairly being aroused as yet and to be increasing. One must doubt his possession of good sense who cannot realize that the future has in store great things for Birmingham.

(By Telegraph.)

Market very firm at quotations given in letter. Sales have been made of Silver Gray at $18, No. 2 at $15.50, and other grades in proportion. The demand is very fair, but not as heavy as last week.

Cincinnati. *(By Telegraph.)*

Office of *The Iron Age*, Fifth and Main streets,
CINCINNATI, August 23, 1899.

While the trading of the past six days has not included very many round lot orders, especially of Foundry grades, yet there has been a very satisfactory run of medium sized sales to parties representing the entire field tributary to this point. But few large buyers are sounding the market just at present, though the inquiry for lots averaging 500 tons is good. The inquiries are from all sections and for all grades of Foundry Iron. The higher grades continue proportionately stronger than the rest of the list. Mill Irons are still quiet, though out of sympathy with the other grades are quoted higher. Northern Coke Irons are jumping up rather stiffly and a further advance of $1 is herewith recorded. Charcoal brands are also sharing in the general advance. Some good sales of Basic Pig are reported at $15, Birmingham, which is $1 higher than last week's selling price. The general situation is unchanged, with no sign of suspicion of weakness anywhere. Higher figures seem bound to come. Complaints regarding scarcity of Coke and labor come from furnaces and foundrymen are experiencing great trouble in getting Iron delivered according to contract. Current sales are almost all for delivery over first half of next year. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1	$19.50 to $19.75
Southern Coke, No. 2	18.50 to 18.75
Southern Coke, No. 3	.... to 17.75
Southern Coke, No. 1 Soft	19.50 to 19.75
Southern Coke, No. 2 Soft	18.50 to 18.75
Southern Coke, Gray Forge	17.00 to 17.25
Southern Coke, Mottled	16.75 to 17.00
Ohio Silvery, No. 1	.... to 28.00
Ohio Silvery, No. 2	.... to 27.00
Lake Superior Coke, No. 1	21.00 to 21.50
Lake Superior Coke, No. 2	20.50 to 21.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	.... to $20.25
Lake Superior Car Wheel and Malleable	24.00 to 25.00

Plates and Bars.—The inquiry is splendid, with a very nice line of orders coming to book. We quote, f.o.b. Cincinnati: Bars, at retail, 2¼c., with half extras; Bars, wholesale, 2c., with half extras; Bar Angles, retail, 2.35c. for 1½-inch and larger; wholesale, 2.20c.; Sheets, No. 10, 2.85c.; No. 27, 3.35c.; Plates, 2.75c. to 2.85c.

Old Material.—A steady, strong market, with normal activity when general conditions are considered. We quote, f.o.b. Cincinnati: No. 1 Wrought Iron Railroad Scrap, $16 to $16.50; Cast Scrap, $11 to $12; Axles, $20 to $21; Iron Rails, $19 to $20; Car Wheels, $15 to $15.50.

Rogers, Brown & Co. announce that the sale agency of the Trussville Furnace, Trussville, Ala., has been placed with their firm. The furnace will be blown in next October.

All the mills and factories at Youngstown, Ohio, have agreed to suspend operations on Monday, September 4, Labor Day.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, August 23, 1899.

(By Telegraph.)

Pig Iron.— About a dozen of the Valley furnace owners met in Cleveland last Saturday, and the present situation in the Bessemer Pig Iron market was carefully gone over. It was shown that the output of the furnaces for the balance of this year, and in some cases into next year, was practically sold up, and in this condition it was deemed best not to fix any price on Iron. There have not been any important transactions in the past week. Some small lots of Iron have sold at prices ranging from about $22 up to $23, Pittsburgh, the latter price being paid for several small lots of Iron for prompt shipment. It is exceedingly difficult to get Iron, and we are advised that $23, Pittsburgh, has been offered for a fair sized lot without bringing it. The demand for Forge Iron is large, and there have been some round lots sold in this market in the past week. Local Forge Iron has sold at $19, Pittsburgh, and Southern Forge at $18.60, Pittsburgh. There is a scarcity of local Forge Iron, and prices will probably be higher. There is a fair inquiry for Foundry Iron, with very little offering. No. 2 in small lots has sold at about $20, Pittsburgh. We quote Bessemer Pig at $21.50 to $22, Valley furnace; Gray Forge, $18.50 to $19, Valley furnace; No. 2 Foundry, $20; Gray Forge, $19; Southern Gray Forge, $18.60 to $18.75; Bessemer, $22 to $23, all f.o.b. Pittsburgh. We note a sale of 1500 tons of Bessemer, made about the middle of last week, at $22.10, Pittsburgh. Also a sale of 100 tons of Bessemer at $23, Pittsburgh, for prompt shipment. Also a sale of 1500 tons of local Gray Forge, and one of 1000 tons at $19, delivered at buyer's mill, Pittsburgh. Also sales aggregating 5000 tons of Southern Gray Forge at $18.60, delivered at buyer's mill, Pittsburgh.

Billets.— The Steel market is in a very mixed condition, and all sorts of prices have been paid. We are advised of sales of Bessemer Billets and Slabs at prices ranging as low as $36, and up to $38 or $39, Pittsburgh. The market may be quoted all the way from $36 to $38, Pittsburgh. Very high prices have been paid for Open Hearth Steel. We learn of one lot running from 0.20 to 0.30 carbon at about $43.50, Pittsburgh. A round lot of Open Hearth Steel running up to 0.50 carbon, deliveries into next year, is reported to have been sold at a price equivalent to about $50, Pittsburgh.

Spelter.— The market is lower, and we quote prime Western at 5.50c. to 5.60c., Pittsburgh.

Muck Bars.— A sale of about 1500 tons is reported at $34, Pittsburgh.

(By Mail.)

Famine prices are being paid for Pig Iron and Steel, with greater difficulty than ever in finding material. In the past week small lots of Billets for prompt shipment have sold close to $38, and Bessemer Pig in small lots at $23, f.o.b. Pittsburgh. The situation to-day in the Iron trade is that every sale of Pig Iron or Steel that is made for delivery this year is simply a squeeze, and somebody is being put off that has material bought at lower prices. The makers of Pig Iron and Steel have tonnage enough booked to take their entire output for all of this year, and in some cases well into next year, and they are not in position to sell a pound of material, except by making somebody wait. With this condition, a buyer who must have either Pig Iron or Steel pays an exorbitant price for it, and is wholly at the mercy of the seller. In Finished Material much the same condition prevails. The Finishing mills have very little material to spare this year, some of them none at all, and prices for what material can be had are steadily advancing. The shortage in Structural Material is getting very serious, and one bridge works in the West is idle this week waiting for material to accumulate. Such a condition as exists in the Iron trade to-day was never known before, and there is not a sign anywhere of a break. The continuance of this condition for the balance of this year is assured, and it is beginning to look as though it would extend through the first half of next year. Sellers seem very indifferent about taking orders, believing that much higher prices will come.

Ferromanganese.— The Carnegie Steel Company have advanced prices, and now quote 80 per cent. Ferro at $100 a ton.

Plates.— Demand for Plates is heavy, and the local mills have very little tonnage to spare for delivery this year. The leading local mill is credited with having enough tonnage booked to take its capacity into first quarter of next year. One other mill reports it is sold up to February, and a third mill to March. Some blast furnace work recently let will take considerable tonnage, and the new works of the Pressed Steel Car Company are rapidly approaching completion, and when in operation will use about 500 tons a day. Jones & Laughlins, Limited, are now operating the 96-inch and the 72-inch Plate mills at the Soho Works. Prices are very strong, and we quote: Tank, ¼-inch and heavier, 2.60c. to 2.75c.; Shell, 2.75c. to 2.85c.; Flange, 2.95c. to 3c.; Marine, 3c. to 3.10c.; Fire Box, 3c. to 3.50c., depending on quality, all f.o.b. at mill.

Structural Material.—The Structural mills are congested with tonnage, and are three to four months behind in deliveries. A good deal of tonnage is being placed, and considerable work will have to go over into next year. A local mill has recently taken considerable foreign work. Prices are unchanged, except Universal Mill Plates, which are now 2.50c. We quote Beams and Channels, 15-inch and under, 2c.; 18, 20 and 24 inch, 2.10c.; Angles, 3-inch and up to 6 x 6 inch, 2c.; Angles under 3 inches, prices on which are not controlled by the Beam pool, are 2.15c. to 2.25c.; Tees, 3 inches and larger, 2c.; Tees under 3 inches, 2.20c. to 2.30c.; Zees, 3 inches and larger, 2c.; Bulb Angles and Deck Beams, 2.30c.; Grooved Rolled Plates, 2.35c., all f.o.b. Pittsburgh.

Bars.—The Republic Iron & Steel Company are understood to be sold up on Iron Bars for the next 60 days, and are quoting only for November and December delivery. A heavy tonnage is being placed, and still higher prices are likely. We quote Common Iron Bars in carload lots at 1.85c., Valley mill, and 2c. in less than carload lots; terms net 30 days, full extras, for Bars cut to lengths. Prices on Steel Bars are higher, and several of the largest mills are practically out of the market as sellers, being filled up for the next three or four months. We quote Steel Bars at 2.25c., at mill. Iron Bars rolled from all Muck Bar stock are also higher, and we quote at 2.25c., at mill.

Sheets.— There is a good demand for both Black and Galvanized Sheets, and deliveries by the mills continue very unsatisfactory to the customers. Some of the largest Sheet mills are practically sold up for balance of this year, but where they are able to spare a few Sheets they secure top prices. We quote No. 27 Black Sheets, Box Annealed, one pass through cold rolls, at 3c. to 3.05c.; No. 28, 3.10c. to 3.15c. There is a good demand for Galvanized Sheets, and some of the leading mills are sold up for the next two or three months. The market is represented by the quotation of 70 and 5 per cent. and 15c. freight allowance for carload lots, but in exceptional cases some mills are quoting 70 and 10, with 15c. freight allowance.

Merchant Steel.—The general trade are buying very freely, while a few contracts from agricultural implement makers are still being placed. The tone of the market is very strong, and prices seem destined to go higher. We quote Toe Calk, 2.75c.; Open Hearth Tire, Machine Straightened, 2.75c.; Machinery Steel, soft, 2.75c.; Hard, 3c.; Common Spring Steel, 3c.; Crucible Analysis, 3.50c.; Tire Steel, 2.50c. to 2.60c.; Plow Slabs, Bessemer, 2.75c.; Open Hearth, 3c.; Sleigh Shoe, 2.75c.; Cutter Shoes, Tempered and Bent, 3.75c.; Crow Bars, Pinch and Wedge Point, 3.50c.; Lay Steel, Rolled, 4c.; Hammered, 5c.; Tool Steel, 6.50c. up to 14c., according to grade. Terms, 60 days, less 2 per cent. cash in ten days.

Skelp.—Demand for Skelp continues very active, and deliveries by the mills are very unsatisfactory to consumers. A local Pipe mill recently placed an order for considerable tonnage in Skelp, deliveries running over a long period. We quote Grooved Iron and Steel Skelp at 2.25c. to 2.35c., and Sheared, 2.60c. to 2.75c. Mills in position to make prompt deliveries of Skelp are able in many cases to secure higher prices than we quote.

Pipes and Tubes.—Demand for Merchant Pipe in the past week has been quite satisfactory, considerable tonnage being entered by the mills. Prices continue strong, and we quote Butt and Lap Weld Merchant Pipe at 50 and two 10's in less than carload lots, with an extra 5 per cent. in carload lots, delivered. Demand for oil country goods is quiet, but is being stimulated to some extent by the high prices for oil. We quote Screw and Socket Joint Casing at 40 per cent., and Inserted Joint at 35 per cent., with an extra 5 per cent. to

dealers. There is a very heavy tonnage in Boiler Tubes and prices are very strong. The Boiler Tube makers are in session to-day (Tuesday) in Atlantic City, N. J., and it is likely an advance in prices will be made. We quote 1¼ to 1½ inch Iron and Steel, 40 per cent. off list; 1¾ to 2½ inch, Iron, 50 per cent.; Steel, 55 per cent.; 2¾-inch and larger, Iron, 55 per cent.; Steel, 57½ per cent., with an extra 5 per cent. to dealers.

Connellsville Coke.—Last week there were 18,306 ovens in the Connellsville region active, and only 598 idle, the production being 192,636 tons. Coke is scarce and higher prices are being paid for it. Furnace Coke has sold up to $2.50 or higher, and Foundry Coke is reported to have sold as high as $2.75 for orders for quick shipment.

New York.

Office of *The Iron Age*, 232-238 William street,
NEW YORK, August 23, 1899.

Pig Iron.—The pressure for early delivery continues and an increasing amount of business is being done for delivery during next year. We quote as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, $21.50 to $21.75; No. 2 X, $20.50 to $20.75; No. 2 Soft, $19.25 to $19.50; No. 2 Plain, $19.50 to $19.75, and Gray Forge, $18 to $18.25. Southern brands are quoted: No. 1 Foundry, $20.75 to $21; No. 2 Foundry, $19.50 to $19.75; No. 1 Soft, $20.50 to $20.75; No. 2 Soft, $19.25 to $19.50; No. 3 Foundry, $19 to $19.25, and Gray Forge, $18 to $18.25.

Steel Rails.—The most important event of the week has been the placing by a large road of an order for 15,000 tons of Steel Rails for 1900 delivery at $28 at mill. This, so far as we can learn, is the first large contract for delivery next year, and it is expected to be followed soon by others. For prompt delivery it is very difficult to place any orders of any consequence, and the Eastern mills have advanced their prices for moderate lots to $32 for Standard Sections and $35 for light Rails.

Finished Iron and Steel.—Only moderate quantities of Structural Material have been placed, among them being one lot of 1000 tons. Prices continue very strong. We note an advance in Hoops and Bands. One lot of 20 000 bundles of Cotton Ties was sold this week at $1.05 at mill. The market remains strong at the following quotations: Beams, 2.15c. to 2.20c.; Angles, 2.15c. to 2.20c.; Universal Mill Plates, 2.50c. to 2.60c.; Tees, 2.20c. to 2.25c.; Channels, 2.15c. to 2.20c; Steel Plates are 2.65c. to 2.70c. for Tank, 2.80c. to 2.85c. for Shell, 2.90c. to 3c. for Flange, 3c. to 3.10c. for Fire Box, 3.10c. to 3.15c. for Locomotive Fire Box, on dock. Refined Bars are 2c. to 2.05c. and Common Bars are 1.85c. to 1.90c. on dock. Soft Steel Bars, 2.10c. to 2.20c.; Steel Axles, 2.10c. to 2.20c.; Scrap Axles, 2c. to 2.10c.; Links and Pins, 1.85c. to 1.90c.; Hoops, 2.52½c., base, delivered.

Metal Market.

Office of *The Iron Age*, 232-238 William street,
NEW YORK, August 23, 1899.

Pig Tin.—The manipulators are still at their work. During the latter portion of last week they felt the influence of the large shipments from the Straits which were reported for the first half of this month. They also felt the result of the Billiton sale and prices here went as low as 30¾c. and London tumbled to £139 10s. On Monday last, however, new courage for the bulls came through the advices from the Straits that the shipments during the third week of August were small. Up went London, and yesterday's cables named £143 2s. 6d. Our market reached 31½c., but closed tame. To-day London closes under small realizations £142 7s. 6d. for spot and £143 5s. for three months' future, with an easy tone. Here the market was extremely quiet to-day and rather weak, with spot being offered at 31¼c. Bids were made for small lots at 31c. The weakness in our market is doubtless due to the heavy supplies arriving this month, which it is said will foot up to fully 2800 tons. During the first half of September about 1700 tons are due here by direct steamers, which will be followed during the second half of September by about 1500 tons more, also by direct steamers. This shows that there is no immediate likelihood of a Pig Tin famine. In fact, during the whole of this year the new supplies were sufficient to prevent any inroad of importance in the visible supply.

Copper.—There is practically nothing new in this metal. Business throughout the last week was not very active, but prices have held their own. We still quote Lake Superior Ingot 18½c.; Electrolytic Cakes, Wire Bars and Ingots, 17¾c., and casting stock, 17½c. The London market was quiet and business at a low ebb. The closing cables to-day came £75 18s. 9d. for spot and £76 6s. 3d. for three months' futures. Best Selected has dropped another 5 shillings and is quoted to-day £80 flat.

Pig Lead.—There was a fair business reported at 4.60c., which is quoted as the present price for spot and September. St. Louis reports to-day an easy market, with larger transactions at 4.50c. London advanced to £15 during the week, but reacted at the close to-day to £14 7s. 6d.

Spelter.—This article is very weak, according to reports, and difficult to dispose of. Spot and this month's delivery are now quoted 5.50c., which is about 15 points lower than prices named last week. It is also stated that September and October are freely offered at 5.40c. These offers are said to meet no buying disposition whatever. The St. Louis market is easy and nominal at 5.50c. London was very weak and closed to-day £23 10s. The decline for the week amounts to 12 shillings 6 pence. The Ore market is quoted unchanged at $45 per ton, but it is taken in the trade that this price is a fictitious one.

Antimony.—Hallett's has weakened a fraction and is commanding only 9¾c. Cookson's is unchanged at 11c.

Nickel—Is without change. Prices for Canadian Nickel range from 36c. to 40c. for larger lots than 1000 lbs. and 40c. and upward for smaller quantities.

Tin Plate.—It is reported that there is a decided renewal of activity. Demand has increased materially during the last week. Prices of the American Tin Plate Company are unchanged at $4.55 to $4.60 per box for 100-lb. Cokes. The English market is very stiff, and it is figured that imported 100-lb. Cokes would cost about 70c. more per box than American Plates.

The Niagara Falls Power & Mfg. Company.

The Niagara Falls Hydraulic Power & Mfg. Company have commenced excavating for the third and last section of their power house at the water's edge in the gorge. The size of the extension will be 100 x 60 feet, which will make the total dimensions of the station 180 x 100 feet. In the new section the installation will be very similar to that in use in the present power house. When this work is completed the plans of the power house will have been fully carried out, and in the new section provision will be made for an electric elevator between the cliff top and the station. The greater part of the current generated in this power house is supplied to the Pittsburgh Reduction Company for the manufacture of aluminum. Two new wheels, each of 2500 horsepower, and four generators to be operated by them, are now being installed, and very soon the power company hope to be giving the Reduction Company an additional amount of power for the operation of the pots in the extension of the lower aluminum works. The National Electrolytic Company are also receiving current from this station, and they have improvements under way which will more than double their capacity and thus greatly increase their demand for electric current. The new plant of the Acker Process Company will be calling for current early next year, while still further extensions are contemplated, and thus it will be seen that the demand on the power capacity of the station is very active.

The Niagara Falls Hydraulic Power & Mfg. Company are already contemplating the erection of a new power house on their property, and there is every probability that it also will be located at the water's edge in the gorge. The site, however, will be some distance down stream, or north, of the present station beyond the Central Flouring Mill. This will necessitate the extension of the hydraulic canal basin some distance along the top of the bank in order that the wheel may get a good supply of water. The present power house is a direct current station, and it is intimated that the new station will generate current of the alternating class and of larger units. This is indeed an important statement and affords a suggestion as to the future lines of the canal power development. Just north of the present station there is to-day much water going to waste, as it flows from the wheels of the mills on the top of the bank, and there is little doubt but that in time all this present waste will be utilized.

In the United States Circuit Court of Appeals, at Philadelphia, on Monday, August 21, an opinion was handed down directing the dismissal of the bill in equity filed by the Carnegie Steel Company, Limited, against the Cambria Iron Company. The Carnegie Steel Company, Limited, brought an equity suit in the United States Circuit Court for the western district of Pennsylvania, asking that the Cambria Company be enjoined from infringing their patent on a process for mixing molten metals in such a manner as to secure uniformity in the product. The Circuit Court granted the injunction prayed for, and the Cambria Company appealed to this court. Judge Kirkpatrick holds the patent to have been anticipated by previous English and American patents, and directs that the bill be dismissed.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING AUGUST 23, 1899

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday	Wednesday
$50,000,000	Am. S. & W., Common	48,203	58⅛-59½	57¾-59⅛	57⅝-58¼	56⅜-57¾	54¾-56¼	56 -57
40,000,000	Am. S. & W., Pref. (7 % Cu.)	4,705	-99	99 -100	99⅝-99⅞	98¼-99⅛	97⅛-98⅝	98 -98⅛
9,250,000	Col. Fuel and Iron	22,015	51¾-52¾	51½-51⅞	51⅛-52⅛	52 -53⅛	51⅛-52¼	51⅜-52⅞
46,484,300	Federal Steel, Common	29,175	59½-59⅞	59¾-60⅛	59¾-60⅛	57⅛-60¾	57¼-58⅝	58⅛-59⅝
53,253,500	Federal Steel, Pref. (6 % Non-Cu.)	4,705	-82	82½-82⅝	81¼-83	81 -82⅝	81⅛-82	81¼-81¾
20,000,000	Tennessee Coal and Iron	27,985	89¾-91¼	90⅞-92½	92½-95¾	97 -100	97¼-99	97 -98⅛
7,974,550	Cambria Iron, Phila*	35	-45	-45	.....	.....	.....	.....
16,000,000	Cambria, Steel***	4,026	23 -23⅜	22¾-23	-22⅞	-22⅞	-22¾	22¾-22⅞
*5,000,000	Penna. Common, Phila	350	.....	-88½	-88⅝	-88⅝	.....	.....
1,500,000	Penna. Pref., Phila	131	.....	-90	.....	.....	.....	.....
28,000,000	Tin Plate Common, New York	7,295	41¾-42	42 -42¼	42 -42¾	42½-43⅛	42 -43	42 -42¼
18,000,000	Tin Plate Pref., N. Y. (7 % Cu.)	1,310	89 -90	90¾-91	-91	90 -90	-90	.....
28,000,000	Tin Plate Com., Chic	1,035	.....	-42	.....	41¾-43	.....	.....
18,000,000	Tin Plate Pref., Chic. (7 % Cu)	632	.....	89¾-90½	-91	-91	-90	.....
32,000,000	National Steel Common, Chic.	1,985	-56¼	56¼-56½	56 -56½	55⅛-56¼	54¾-55½	55 -55½
27,000,000	National Steel Pref., Chic. (7% Cu)	910	97 -97½	97¾-98	.....	97 -98	97½-98	.....
32,000,000	National Steel, Common, N. Y.	7,285	56¼-56½	56¾-56½	56 -56¼	55½-56	55 -55⅝	55¼-55¾
27,000,000	Nat'l Steel, Pref., N. Y., (7 % Cu.)	1,540	-97¼	97¼-97½	98 -98½	98 -98¼	98 -98½	-98
7,500,000	Bethlehem Iron†	300	-62¼	.....	.....	.....	-62¼	.....
15,000,000	Beth. Steel, Par $50, $1 paid in.	983	22 -22¼	.....	.....	-22	-22¼	-22
12,500,000	Pressed Steel, Common	3,400	59 -59½	.....	.....	-59⅛	59 -60	59 -60
12,500,000	Pressed Steel, Pref. (7 % Non-Cu.)	1,380	-89½	89¼-89⅞	.....	-89¾	-89¾	-89½
19,000,000	Am. Steel Hoop, Common	7,195	38 -38½	37⅞-39	38¾-38⅞	37⅝-38½	37¾-38	38 -38⅜
14,000,000	Am. Steel Hoop, Pref. (7 % Cu.)	3,345	83⅜-84⅛	83 -84½	83½-84	83 -83½	-83	83¾-84
20,000,000	Am. Car & Foundry, Common	2,236	-17	16⅞ 17¾	-17¼	17¾-17⅞	-17	-17
20,000,000	Am. Car & F'd'y, Pref. (7% Cu)	3,294	-67¼	66⅝-67⅞	-67⅛	66 -66¼	-65½	65¼-65¼

*Par $50. **Par $100 ***$1.50 per share paid in. †6 % guaranteed by Beth. Steel Co. Late Philadelphia and Chicago sales by telegraph.

Bonded Indebtedness: Am. S. & W., $130,656; Am. Tin Plate, none; Am. Steel Hoop, none; Federal Steel Co., $13,200,000 Illinois 5 %, $7,417,000 E. J. E. R. R. 5 %, $1,600,000 Johnson 6 %, $6,732,000 D. & I. R. R. R. 5 %, $1,000,000 2d D. & I. R. R. R. 6 %, $10,000 land grant D. & I. R. R. R. 5 %; National Steel, $2,561,000 6 %; Tennessee C., I. & R. R. Co., $8,367,000 6 %, $1,114,000 7 %, $1,000,000 7 % cu. pref.; Pennsylvania Steel: $1,000,000 Steelton 1st; $2,000,000 Sparrow's Point 1st, $4,000,000 consolidated, both plants; Bethlehem Iron, $1,351,000 5 % maturing 1907. Interest and principal guaranteed by Bethlehem Steel Co.

Iron and Industrial Stocks.

The most striking movement during the current week has been the advance in the stock of the Tennessee Company, which at one time touched par. The Wire stock was affected by the uncertainties as to the listing of the securities of the company. Generally speaking, the movement in the iron stocks was moderate during the week in a narrow range.

	Bid.	Asked.
International Silver, Common	16¾	17½
Otis Elevator, Common	34	35
Otis Elevator, Preferred	95	96
H. R. Worthington, Preferred	109	111
Cramp's Shipyard Stock	83	86
Pratt & Whitney, Common	3½	5
Pratt & Whitney, Preferred	38	48
E. W. Bliss, Common	138	...
E. W. Bliss, Preferred	125	...
U. S. Projectile	95	100
Barney & Smith Car, Common	21	25
Barney & Smith Car, Preferred	81	86
International Pump, Common	23	24
International Pump, Preferred	72½	73½
Republic Iron & Steel, Common	22½	23
Republic Iron & Steel, Preferred	74	74¾
New Haven I. & S.	6½	...
Susquehanna I. & S.	7¼	7⅜
Diamond State Steel	7¼	...
Tidewater Steel	16¼	18¼
Warwick Iron & Steel	12½	...

Sales to-day of Warwick were 1000 shares.

The statement is made that the gross earnings of the Westinghouse Electric & Mfg. Company for the fiscal year ended last March were $7,142,370, and the net earnings $1,275,000. These are the first figures of a semi-official character that have been given the public since last November, when the company floated their debenture bonds. At that time it was stated that the gross earnings for the six months ended September 30, 1898, were $3,267,910, and the net for the same period $689,003. The surplus for the six months was stated at $526,533.

Tenneseee Coal, Iron & Railroad Company report for July:

	1899.	1898.	Changes.
Net earnings	$117,212	$50,008	Increase. $67,204
Fixed charges	46,563	47,479	Decrease, 916
Surplus	$70,649	$2,529	Increase, $68,120
January 1 to July 31:			
Net earnings	$627.074	$466,332	Increase, $160,742
Fixed charges	350,027	287,403	Increase, 62,614
Surplus	$277,047	$178,929	Increase, $98,118

The American Steel Hoop Company.

The American Steel Hoop Company are making extraordinary records in the magnitude and character of the business done. Their tonnage is developing very fast, in spite of the fact that the hot weather naturally reduces the output of the mills. During July the American Steel Hoop Company shipped 63,000 tons of product, of which 20,000 tons were pig iron and 43,000 tons were finished iron and steel. At the rate at which the plants are now producing it is expected that the output, with colder weather, will attain 70,000 tons and later 75,000 tons per month. A new 10-inch train of the latest type has just been finished at the Union works at Youngstown, which will increase the product, and the new Monessen plant is coming up to full capacity.

On August 1 the company had on their books orders aggregating 200,000 tons for finished products, including bands, hoops, skelp, bars and cotton ties, and had sold for delivery 75,000 tons of pig iron. On all raw materials for the rolling mills, the company are covered up to March 1. For their blast furnaces the company have ore contracted for to run up to July 1, 1900, while their own collieries and coke ovens produce enough to meet one-half of the requirements in this respect.

From April 17, the date of the organization, up to August 1, the American Steel Hoop Company have earned a profit estimated at $600,000 on business the bulk of which was at the low prices prevailing early in the year. It is conservatively estimated that on the orders now on hand a profit of $10 per ton will be realized.

W. E. Reis, president of the National Steel Company, at the last meeting of the Board of Directors was elected a member of the Executive Board of the American Steel Hoop Company.

Two New Blast Furnaces.— The Riter-Conley Mfg. Company of Pittsburgh, builders of iron and steel structures and heavy plate work, have received a contract for the iron work for the two new blast furnaces to be built by the American Steel & Wire Company, one beside Edith in Allegheny and the other adjacent to Emma in Cleveland. These furnaces will be thoroughly modern, each 100 feet high and either 22 or 23 feet in diameter at the bosh. They will be equipped with four Kennedy-Cowper hot blast stoves, hot and cold blast pipes, and all the latest appliances used in blast furnace practice. It is expected to have both stacks completed in six or eight months from the time work is commenced, or, in other words, the two stacks will probably be ready for blast not later than April 1, 1900. Each stack will have a rated daily capacity of 600 tons. With the completion of the new furnace at Edith, the two stacks will turn out between 1000 and 1200 tons of metal daily, all of which will be consumed by the Shoenberger Steel Company department of the American Steel & Wire Company. It will be recalled that a new blooming mill is being built in the Bessemer steel plant of the Shoenberger Steel Company, which will bring the capacity for billets up to about 1000 tons a day.

At a special meeting of the British Westinghouse Electric & Mfg. Company, Limited, held recently in London, it was decided to increase the capital of the company from $7,500,000 to $8,750,000, with the view of acquiring from the Westinghouse Machine Company of Pittsburgh the rights and patents of the Westinghouse gas engine.

The Cambria Steel Company have prepared plans for a large modern office building at Johnstown, Pa.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, }
NEW YORK, August 23, 1899. }

In another column we print a review of the official list of specifications for machinery and tools for equipment of the new machine shop which is being erected at the New York Navy Yard, Brooklyn, N. Y. Recent advices from Washington state that the Treasury Department is about to solicit proposals for the purchase of certain engines, dynamos, &c., now in use in the United States Post Office and sub-Treasury at Boston, Mass., but which are to be displaced by a new plant. Proposals will be received at the Treasury Department up to 2 o'clock p.m. on Monday, September 4, 1899, and will then be opened. The articles to be sold to the highest bidder are as follows:

"Three Porter-Allen engines, No. 1, diameter of cylinder, 11½ inches; stroke, 20 inches; revolutions per minute, 230; engine horse-power, 100; in good running order, with section of shaft and two pulleys, 4 x 16 inches and 48 x 10 inches; also foundation stone. Nos. 2 and 3, diameter of cylinders, 11½ inches; stroke, 16 inches; revolutions per minute, 285; horse-power, 100 each; in fair condition; now running; with sections of shaft and pulleys, one 38 x 12 inches (friction), one 38 x 12 inches, four 48 x 12 inches and two 60 x 10 inches; also granite foundation cap stone; five Edison dynamos, 30 kw. each, in good running order, now in use; one eight-panel switchboard with automatic circuit breakers and instruments complete, in first-class order. Immediately after acceptance of proposal the contractor will be required to remove engines Nos. 2 and 3 and dynamos Nos. 3 and 4. The same to be hoisted to sidewalk on Devonshire street by removing 'Hyatt' lights. Engine No. 1 and dynamos 1, 2 and 5 will be continued in use until such time as new units shall have been installed, and shall then be removed by hoisting to Milk street sidewalk at such time as shall suit the convenience of the Department. F. A. Vanderlip, Assistant Secretary."

Efforts of the officials of the International Pump Company are now being directed toward the re-equipment of certain of the plants which they have acquired, and which are at present not thoroughly modern. For this purpose large purchases of machine tools will be necessary. Specifications for this machinery are now being prepared. A quantity which is most urgent is about to be purchased, and bids from various machinery dealers are now being considered. An official of the company stated to a representative of *The Iron Age* yesterday that one of the strongest points toward the success of the company would be the bringing of all of the plants to the top notch of efficiency. He stated that when the idea of consolidation was first conceived the sore need of new equipment for certain plants was fully realized, and that in fact this was one of the points which made the consolidation most desirable. The concerns who needed modern machinery most could not afford to purchase it. The International Pump Company are not hampered by lack of funds, and wherever a tool can be installed which will insure further efficiency of the plant that tool will be purchased. The executive offices of the company are located in the Standard Oil Building, 26 Broadway, New York. This is where the purchasing agent makes his headquarters.

With the exception of the Blake-Knowles Company all of the New York offices have been removed to the Beard Building, 120 Liberty street. In this building are now the selling headquarters for the Worthington, Snow, Deane and Laidlaw-Dunn-Gordon companies. As soon as the lease of the Blake-Knowles Company expires on 91 Liberty street this concern will also be domiciled under the roof of 120 Liberty street. In Boston, Philadelphia and Cleveland all of the offices are now under one roof. In Chicago and Pittsburgh this work is now being attended to by Mr. Dunn of the Laidlaw-Dunn-Gordon Company.

To-morrow, Thursday, afternoon, at two o'clock, there will be a meeting of manufacturers in the metal trade of this district, held at Munchenheim's, Thirty-first street, near Broadway, New York. The object of this meeting is to discuss the advisability of forming a permanent association, to establish equitable relations between employers and their employees, for the protection of both interests. In a letter sent to the trade by H. N. Covell of the Lidgerwood Mfg. Company, and signed by H. R. Worthington, E. W. Bliss Company and the Lidgerwood Mfg. Company, is contained the following:

"The universal agitation now going on in labor circles would indicate that united action on the part of employers is extremely desirable, especially in view of the very satisfactory results attained by the foundry interests through their association in its dealings with the molders."

It will be seen from this that the object is to organize a union of employers to meet the existing unions of the employees. The advisability of such a movement has made itself very manifest lately especially in the instances of the recent boiler makers, shipbuilders and pattern makers' strikes. In shops along the Hudson River it is said the men are still out on strike. The pattern makers' strike is also still unsettled. There is evidently an association in operation in Great Britain built on the lines desired here. We notice that letter heads of large English and Scotch engineering firms bear the imprint "Engineering Employers' Federation."

We are in receipt of a circular letter which has been sent to the trade by Blake & Johnson, Waterbury, Conn., stating: "On account of the continued increase in cost of labor and materials used in the construction of our machinery, we hereby withdraw all quotations and shall be pleased to submit new figures at your request."

It is reported that Babcock & Wilcox are negotiating a large deal in realty in Bayonne, N. J., for the purpose of erecting entire new works at that point. The property which may be purchased extends more than 800 feet along the Kill von Kull water front, taking in eight city squares. The aggregate purchase price it is said will be more than $300,000. The contemplated plant will cost more than $1,000,000. The present plant of the Babcock and Wilcox Company, at Elizabethport, N. J., has for some time been inadequate, and as stated previously in this column the company are contemplating the erection of an entire new plant.

It is stated to the trade that the A. Mertes Mfg. Company of Allegheny, Pa., have been purchased by the interests of the R. D. Nuttall Company of the same city. It is also said that the Mertes Company will be named the Iron City Gear & Mfg. Company. Both the Nuttall and Iron City works are engaged in the manufacture of electric motor gears and pinions.

The United Engineering & Contracting Company, whose officers are in the Ivins Syndicate Building, Park Row, New York, have just taken an order for a fuller's earth plant to be erected at Thirty-ninth street, Brooklyn, by the Manhattan Fuller's Earth & Refining Company. This will be the first plant of its kind ever built in the North, and the second in this country. Bids are now being considered for the supplying of apparatus necessary in the construction of the plant.

W. J. Carlin, 610-611 Lewis Block, Pittsburgh, Pa., dealer in steel works and rolling mill machinery and steam shovels, has opened offices in Room 1210 Downing Building, 108 Fulton street, New York City, under the management of Andrew Harper. Mr. Carlin has also secured warehouses and yards in close proximity to New York City in order to facilitate the handling of Eastern business.

W. H. Morgan, president of the Morgan Engineering works, has sailed for Europe for the purpose of establishing branch offices in England, Belgium, France and Germany.

It is expected that a representative of the Francis Tosi Engineering Works of Leguano, Italy, will visit this country before the close of this month. This concern, it is stated, anticipate the erection of a large addition to their works. About $75,000, it is said, will be spent for machine tools.

It is expected that Max Hoffman and Herman Ortman, representatives of the Roechling Iron Works, Voelkinger, Germany, who are in this country, will arrive in New York this week.

The Gotkeik Viaduct. — The White Star Line Steamship "Majestic," which sailed from New York, Wednesday 23d inst., carried among its passengers a force of bridge erectors destined for Burma, where they will be engaged in erecting the Gotkeik Viaduct, being constructed by the Pennsylvania Steel Company. The gang, which numbers about 25 men, is in charge of Louis N. Gross, who has been connected with the Pennsylvania Steel Company for eight years in the capacity of erection foreman. The first steamship loaded with the first consignment of material, amounting to about 2000 tons, is also cleared for sailing, and is expected to reach Rangoon, Burma, simultaneously with the men. In addition to the steel work, the cargo contains some 20 carloads, comprising the erection plant, including complete air compressor plant and steel traveler, which will have a greater overhang than any traveler before constructed—that is, 160 feet.

The Rod Mill Workers. — PITTSBURGH, PA., August 23, 1899.—(*By Telegraph*).—The national convention of rod mill workers in session at New Castle, Pa., this week adopted on Tuesday, August 22, a uniform scale of wages for rod mills throughout the United States. The scale provides for an increase in some departments. The convention will meet in Pittsburgh next year. T. C. Jones of Pittsburgh was elected president, Thomas L. Lewis, vice-president and P. J. Mundle, Youngstown, secretary and treasurer.

The Philadelphia Machinery Market.

Office of *The Iron Age*, Forrest Building,
PHILADELPHIA, PA., August 22, 1899.

The volume of business in this market is fully maintained. Although it is usual in August to expect some falling off in the demand, orders during this month have come in in a manner quite satisfactory to builders, and in numbers fully up to the standard of the past three or four months. There has probably been a little less business done in large machine tools, but the orders for small tools are sufficiently numerous to supply any deficiency. About the only disturbing feature of the situation is the scarcity of material, and this is hampering builders very considerably. Anything into which structural materials—such as girders, beams, &c.—enter cannot be delivered with anything like promptitude and builders are quite at the mercy of the mills when making their quotations. Castings, steel bars, forgings and many other materials are in poor supply, and much work is tied up on this account. There was a wholesale discharge of machinists at Cramps' shops this week, due, it is said, entirely to the shortage of structural and other material required for the work in hand. It is expected that many men will shortly have to be laid off at the Neafie & Levy shops unless the supply of material improves. For want of material at the latter yards work on the three torpedo boat destroyers has been practically suspended for some time, as well as on several ocean going tugs and a large passenger steamer. This state of things is not conducive to the further extension of business generally, and in the shipbuilding line it would be hard to place an order for the delivery of a vessel within what might ordinarily be considered a reasonable time.

The demand from abroad for machinery of all kinds continues to grow. Inquiries are very prolific and orders numerous. Many foreign buyers are not content to rely on correspondence alone in their buying but are sending representatives into the market. The foreign visitors during the past week include a member of the well-known firm of John Macdonald & Son, Glasgow, Scotland, and two engineers of the firm of Gio. Ansaldo & Co., Naples, Italy. The latter gentlemen will visit most of the leading tool and shipbuilding establishments in this country. Builders of machine tools have little or no stock on hand. The exhibits in the machinery department at the Bourse are looking very slim, and there are cards here and there apologizing for the emptiness of the spaces and promising a refurnishing at an early date.

The American Tool Works Company a little while since engaged an exhibition space approximating 250 feet and made a card announcement that they would open an exhibit of their machinery on or before August 1. The space is still empty, and a new card appears intimating that owing to the large and increasing demand for their tools they cannot install any tools without interfering with the urgent demands of their customers.

Bids were received last week and contracts awarded for six large pumps and several boilers for various stations of the Philadelphia system of water supply. Two 5,000,000-gallon pumps for the Roxborough station were secured by the Henry R. Wortington Company, the price bid being $30,000 each. Two 3,000,000-gallon pumps for the Frankford station went to the Holly Mfg. Company at $17,276 each. The Worthingtons also received the contract for a 5,000,000-gallon pump for the Belmont station and another of the same capacity for Roxborough station, the prices being $22,250 each.

Macy, Henderson & Co., Philadelphia, were awarded a contract for an engine house and intake at Roxborough for $63,972, a boiler house to cost $18,927 and an electric crane to cost $6605. Henry Kuemmerle, Philadelphia, received a contract for an engine house at Frankford to cost $16,699. I. P. Morris & Co., Philadelphia, were awarded three high service boilers to be installed at Frankford, to cost $4975 each, and Robt. Wetherill & Co., Chester, Pa., got two boilers for Roxborough at $4250 each. Henry R. Worthington is to supply the pump chambers and valve at Roxborough for $7300 and the pump chambers for the Queen Lane station are to be supplied by the Southwark Foundry & Machine Company at $1525 each. R. D. Wood & Co., Camden Iron Works, Camden, N. J., got a $4500 contract for 36-inch and 48-inch cast iron pipe.

The New York Shipbuilding Company are pushing along the work of the erection of their plant as rapidly as possible. They still have a number of specifications out for machinery needed for their equipment, among the machinery required being a large scarfing machine and a Scotch boiler drill.

The Niles-Pond-Bement consolidation is now completed, and Bement, Miles & Co.'s plant and the plant of the Philadelphia Engineering Works are now being run under the new management. Fred. W. Gordon, formerly chairman of the Board of Management of the Philadelphia Engineering Works, is now the manager of the Bement plant, and the plant of the Philadelphia Engineering Works will be in charge of Victor O. Strobel, the late secretary of the concern, who will assume his new duties on his return from Europe. F. B. Miles of the late firm of Bement, Miles & Co. will remain actively connected with the new concern in the capacity of a member of the Board of Engineers. At the Bement plant there is a vast amount of business in hand and the shops are consequently crowded with work.

Lucas & Gliem, machine tool builders and electrical engineers, are exceedingly busy. Orders in their tool department are so numerous that they are compelled to run their plant day and night to meet their engagements in regard to deliveries. They have a good deal of special machinery under way and are figuring on specifications for quite a number of special tools for different concerns. They have just shipped a second large cold saw cutting off machine to the Frankford Steel Company, Ellwood City, Pa., and a similar machine, also on a second order, to Gould & Eberhardt, Newark, N. J. Among other orders just completed is one for a steel foundry cold saw cutting off machine for the Ferro-Carbon Casting Company, Philadelphia. The orders in hand for cutting off machines include one from the Solid Steel Castings Company, Chester, Pa., for a steel foundry cutting off saw. The firm have a great deal of work in hand in their electrical department, including the installation of a lighting plant in the Adams Worsted Mills, Manayunk, Pa. They have just completed the installation of a complete electric lighting plant at the Sterling Mills, Bridgeport, Pa.

Wm. Sellers & Co., Inc., report the condition of business at their works unchanged. Every department is full of work and the influx of orders and inquiries continues to be on a large scale.

Edwin Harrington, Son & Co. are quite busy on orders for drills, lathes and other machine tools. They are also doing a nice business in portable hoists and hoisting machinery and appliances. They are getting a good many inquiries for their multiple drills, which are recognized as very economical from a labor saving standpoint.

Israel Johnson, Jr., & Co., builders of lathes, have booked a good many orders during the month for small and medium sized tools. They report a very satisfactory condition of business, with a good prospect for its continuance.

The Pedrick & Ayer Company are exceedingly busy on orders for compressors, pneumatic appliances and machine tools. Their foreign trade is growing nicely and shipments are frequent. Among late shipments are mentioned two No. 2 compressors to France and two others to Belgium. Among the more recent domestic shipments they mention a No. 2 compressor to Davis & Farnham, Waltham, Mass., with pneumatic attachments for a very large crane for foundry use. A large number of compressors and pneumatic tools and appliances are in course of construction at the works, all in fulfillment of orders in hand.

At the Philadelphia Engineering Works plant the rush of business continues. Among the orders recently booked is one from the Blast Furnace Power Syndicate, London, England, for a blowing engine, blowing cylinders 72-inch diameter, 30-inch stroke, to run 160 revolutions per minute, and to be driven by gas engines consuming blast furnace gases, the gas engines driving the blowing cylinder direct at the same speed, 160 revolutions. The displacement of the engine is proportional to the piston speed, making the delivery of the engine much greater than attained by the ordinary type of engine of similar dimensions. A great many orders for blast furnace repairs are in hand and consequently all the available resources of the plant are brought into use in this department. In the machinery department a number of compressors to be used for pneumatic transmission are in hand and the crane department has several nice orders for electric cranes on its books. In the plate department they are building a 170-foot stack for the Newport News Shipbuilding Company. The works, which now form part of the Niles-Pond-Bement consolidation plant, are to be increased very shortly by the addition of a shop 380 x 50 feet, to be used for the erection of cranes. The new shop will be equipped with modern tools, air riveters, portable punching machines and electric traveling cranes capable of handling large girders.

The Pennsylvania Machinery Company have booked

a number of good orders during the month just passed, including one for two direct connected compound engines and fittings for the Camden, N. J., Manual Training School. The company report both inquiry and demand to be in a very satisfactory and steady condition.

Alfred Box & Co., builders of engines and cranes, have a very large number of orders in hand. In their engine department they are very busy on the engines for the torpedo boats "O'Brien" and "Nicholson," now building at the Nixon yards. These engines are about 25 per cent. completed and would have been very much further along had it not been for the great delays in the delivery of materials. There is quite a rush of business in the firm's crane department and considerable business in the hoist department.

The Harrison Safety Boiler Works continue exceedingly busy in all departments. In their heater department they are particularly active, the orders for Cochrane feed water heaters and Cochrane separators being especially large in number. One of the heaters, ordered by the National Steel Company, is of 10,000 horse-power capacity, and is said to be the largest ever built. In the boiler department there is quite a press of business, some of it foreign. Among the foreign orders is one from Yokohama, Japan, for a 50 horse-power boiler.

At the office of the Henry R. Worthington Company, pump manufacturers, a good month's business is reported. Besides the contracts obtained from the city for water works pumps, they have received an order from the Cambria Steel Company for a large boiler feed pump; another from the Maryland Steel Company, Sparrow's Point, Md., for several pumps for steamships in course of construction; another from Morse, Williams & Co., Philadelphia, for two large elevator pumps; another from R. D. Wood & Co., Camden, N. J., for two pumps for the subway elevator they are building, and another from the Delaware River Iron Shipbuilding & Engine Works, Chester, Pa., for a vessel equipment of pumps. Their orders for small pumps within the same period were quite voluminous.

The Geo. V. Cresson Company have a large amount of business in hand, much of it covering power transmission equipment. Recent shipments of shafting and pulleys included a large one to Switzerland and another to Holland. In their machinery department they have a quantity of dredging machinery and several sets of crushing rolls on the floors in various stages of completion.

The Jas. Smith Woolen Machine Company, Philadelphia, Pa., have a great press of business at their works, their orders covering power transmission machinery, textile, stamping and special machinery. They have just obtained possession of some buildings adjacent to their Race street works and have purchased a number of machine tools for the equipment of the same. They have just been awarded the contract for the power transmission equipment for the buildings of the Philadelphia Exposition and have already commenced the work of installation. The contract includes connecting lines of shafting for exhibitors' use. Among the larger orders they have in hand they mention one for a batting plant for the United Waste Mfg. Company, Troy, N. Y.

The American Pulley Company report a sufficiency of orders in hand to keep their whole plant pretty busy. They are making good headway with their new plant at Nicetown and expect to have it in operation by January 1 next. They are building up a very nice foreign trade, the number of export orders shipped during the past month being quite large. They received a few days since an order from Paris, France, for about three carloads of their all wrought steel pulleys.

The Wyoming Lace Mfg. Company, Wilkes-Barre, Pa., are about to invite estimates for a new three-story factory building, 45 x 109 feet, with a 50-foot water tower in the rear.

Herbert Mays & Co. are having drawings prepared for a new three-story factory building at Tenth and Morris streets, Philadelphia.

The City Councils of Reading, Pa., are considering a proposition for a municipal electrict light plant, and it is understood that the project has the support of the Board of Public Works of that city.

Hoyle, Harrison & Kaye, manufacturers of upholsterers' materials, have awarded the contract for the erection of a five-story brick mill building, 61 x 62 feet, and a one-story addition to their present building. Considerable machinery will be installed.

L. W. Evans is obtaining estimates for a five-story factory building on Paul street, below Meadow street, Frankford. The building is to have fire proof floors and, it is understood, will be an adjunct to the owner's brass foundry.

The West Chester Knitting Company, West Chester, Pa., are having drawings prepared for a new factory building at West Chester. The equipment will be thoroughly modern in all particulars.

The Pooley Furniture Company are building a large addition to their factory at Seventeenth street and Indiana avenue and will install new machinery.

Drawings are being prepared by Horace M. Beam, architect, for a new silk mill to be located at Lansdale, Pa. Proposals for the machinery are about to be considered.

The International Steam Pump Company have taken over the Henry R. Worthington office, 724 Arch street, and will carry on their exhibition floor lines of Worthington, Blake, Knowles, Deane, Snow and Laidlaw Dunn-Gordon pumps. The management of the branch will devolve upon Thos. C. McBride, formerly manager of the Philadelphia office of the Snow Steam Pump Works. W. S. Doran, the manager of the Worthington office, has been appointed assistant manager of the London, England, office of the Worthington Pumping Engine Company.

The Union Steel & Chain Company.

We are officially advised that the following properties are under option to the Union Steel & Chain Company of New York, that many of them have already been accepted, and that title papers are now being examined preparatory to taking them over:

Allentown Rolling Mills, Allentown, Pa.
Apollo Sheet Iron Mills, Apollo, Pa.
Auburn Iron Works, Auburn, N. Y.
Berlin Iron Works, Glen Iron, Pa.
Big Stone Gap Furnaces, Big Stone Gap, Va.
Bower & Mallory, chain plant, Carlisle, Pa.
E. & G. Brooke Iron & Steel Company, Birdsboro, Pa.
Cady Creek Iron Mine, Spring Valley, Wis.
Cambridge Iron & Steel Company, Cambridge, Ohio.
J. B. Carr Company, chain works, Troy, N. Y.
Chatham Furnace, Chatham, N. Y.
Champion Iron Company, Kenton, Ohio.
Cherry Valley Iron Works, Leetonia, Ohio.
Chicago Chain Works, Chicago, Ill.
Cleveland Steel Company, Cleveland, Ohio.
D. S. Cook, ore mines, Glen Wilton, Va.
Connellsville coke lands, 1000 acres.
Crum Lynne Iron & Steel Company, Crum Lynne, Pa.
Davis & Farnum Mfg. Company, Waltham, Mass.
Dennison Rolling Mill, Dennison, Ohio.
Denver Rolling Mill, Denver, Col.
Dresden Iron & Sheet Steel Company, Dresden, Ohio.
J. A. & P. E. Dutcher, Milwaukee, Wis.
Ellis & Lessig Steel & Iron Company, Pottstown, Pa.
Fannie Furnace, West Middlesex, Pa.
Gilman Ore Mines, Spring Valley, Wis.
Harriman Rolling Mill, Harriman, Tenn.
Hayden, P., Saddlery Hardware Company, rolling mill and chain works, Columbus.
Hollidaysburg Iron & Nail Company, Hollidaysburg, Pa.
Hussey, Binns & Co., Pittsburgh, Pa.
Jefferson Steel & Mfg. Company, Birmingham, Ala.
Jeffrey Mfg. Company, Columbus, Ohio.
C. P. Huntington, Kanawha coal and coke lands.
Kankakee Superior Horse Nail Works, Kankakee, Ill.
Kansas City Bolt & Nut Works, Kansas City, Mo.
Kinsley Iron & Machine Company, Canton, Mass.
Knoxville Iron Company, Knoxville, Tenn.
Lebanon Chain Works, Lebanon, Pa.
Lebanon Mfg. Company, Lebanon, Pa.
Marshallton Iron & Steel Company, Marshallton, Del.
Missabe ore mine.
McCoy & Linn, blast furnace, rolling mills, chain works, Milesburg, Pa.
National Steel Casting Company, Montpelier, Ind.
New Philadelphia Iron & Steel Company, New Philadelphia, Ohio.
North Flat Top coal fields, West Virginia.
A. J. O'Leary, chain works, Chicago, Ill.
Theodore Oliver, rolling mill, Easton, Pa.
Pocahontas coking coal lands.
Princess Furnace, Glen Wilton, Va.
Roaring Run iron property, Roaring Run, Va.
Saxton Furnaces, Saxton, Pa.
Sheffield Rolling Mill, Sheffield, Ala.
Spring Valley Furnaces, Spring Valley, Wis.
W. C. Starr & Son, Richmond, Ind.
Sunbury Iron Works, Sunbury, Pa.
Treat Mfg. Company, Hannibal, Mo.
David Ward, New River coking coal lands, Detroit, Mich.
Wellston Iron & Steel Company, Wellston, Ohio.
West End Chain Works, Lebanon, Pa.

In many respects this is a very extraordinary collection, since it embraces plants in all parts of the country and making all sorts of products, and takes in many works which have long been idle.

The Cady Creek and Gilman ore mines are a part of the Spring Valley furnace property.

The blast furnaces include two of the Allentown Rolling Mills, with old fashioned equipment; the two Brooke furnaces at Birdsboro: the Chatham charcoal furnace, now under lease to the Salisbury Carbonate Iron Company; the Cherry Valley Furnace at Leetonia, Ohio, which has been a steady producer; the Fannie Furnace at West Middlesex, in the Shenango Valley, under lease for a year to the Reed Furnace Company; the Saxton furnaces in Western Pennsylvania, long idle; the Princess Furnace in Virginia, a small plant, which has, however, had a very prosperous career; the Big Stone Gap furnaces and the two Wellston stacks in the Hanging Rock region.

The steel plants are supposed to include the two little converters of the E. & G. Brooke Iron Company, long idle; the Jefferson experimental plant at Birmingham, Ala., with one little open hearth furnace, long idle, and the two 15-ton open hearth furnaces of the Cleveland Steel Company, which are modern.

The rolling mills include some very antiquated plants and a few more modern establishments. They deal with a very wide range of products. The Cleveland Steel, Cambridge, Dennison, New Philadelphia, Oliver and Marshallton make sheet iron; Crum Lynne rolls skelp; the Brooke Company and Ellis & Lessig are the most prominent of Eastern cut nail makers; Hussey, Binns & Co. make crucible steel and shovels, and a number of concerns are enumerated who produce chain. Other works make bars and bolts.

In addition we have a series of plants which are general founders and machinists, like Davis & Farnum Mfg. Company of Waltham, Mass.; J. A. & P. E. Dutcher of Milwaukee; Kinsley Iron & Machine Company, Canton, Mass., and others. What advantages are to accrue from their possession we do not pretend to grasp. A notable firm in the list is that of the Jeffrey Mfg. Company.

The Association for Testing Materials.

The second annual meeting of the American section of the International Association for Testing Materials was held at Pittsburgh on August 15 and 16. The meeting was called to order promptly at the appointed time by the president of the American section, Prof. Mansfield Merriman of Lehigh University, in the hall of the Engineers' Society of Western Pennsylvania, 30 members and a number of guests being present. About 50 members reported during the meeting. Among the members present were: The American Society of Mechanical Engineers, represented by Gus. C. Henning, who is member of council of the International Association for Testing Materials and who organized the American section about one year ago; the Bethlehem Steel Company, represented by Maunsel White and H. F. J. Porter; the Illinois Steel Company, P. E. Carhart, inspecting engineer; the Cambria Steel Company, Geo. E. Thackray, assistant engineer; the Carnegie Steel Company, Jno. McLeod, engineer of tests; the Pencoyd Iron Works, Jas. Christie, chief engineer; the Monongahela Iron Company, R. A. Carter, president; the Carbon Steel Company, R. W. Anderson, superintendent; the Coatesville Iron & Steel Company, C. L. Huston, vice-president; Technische Verein of New York, P. A. Lange, superintendent Westinghouse Mfg. Company; Technische Verein, Pittsburgh, W. H. Schotte, consulting engineer; the American Foundrymen's Association, Dr. R. G. G. Moldenke; Prof. A. N. Talbot of University of Illinois; Prof. J. W. Hatt of Purdue University; Prof. J. M. Porter, Lafayette College; Prof. J. H. Fessenden, Western University; Prof. Edgar Marburg, University of Pennsylvania; P. L. Humphrey, engineer of tests, City of Philadelphia; Frank C. Osborn of the Osborn Company; Paul Kreuzpointner, in charge of Pennsylvania Railroad laboratory; M. J. Wickhorst, engineer of tests of C., B. & Q. R. R.; E. A. Kincaid, engineer of tests of C. & N. W. R. R.; Thos. D. West, and F. S. Rice, engineer of tests, Keystone Bridge Works.

After presentation of reports of officers Gus. C. Henning presented his report, laying before the American section the most important business now before the council—viz.: The possible acceptance by the International Association of an invitation of the French Government to attend a World's Fair Congress on Testing Materials at Paris in 1900.

The International Association had been twice invited by the French Government, in 1895 and in 1897. The latter was definitely accepted, which called for a congress at Paris in 1900 during the World's Fair. Many promises of favors and hospitable treatment were made and held out at Stockholm when the invitation was tendered, and when the statutes governing the World's Congresses of 1900 were issued by the French Government they, in view of this invitation, contained a clause which stated that engineering associations which habitually held World Congresses should manage the congress in their respective lines during the fair in 1900. These statutes were officially transmitted to and accepted as law by the council of the International Association for Testing Materials. When the latter, however, held a meeting in May, 1899, in Paris, it was bluntly stated that the part of the statutes had been eliminated, that the Government would take the responsibility of calling a Congress on Testing Materials, and that the association could not hold its proposed congress under penalty of loss of reduced railway fares, exposition tickets, official recognition and all courtesies. The council then passed resolutions accepting the invitation of the French Government, on condition, however, that ample accommodations be provided for the association to carry out its programme of necessary business, such as adoption of constitutions, election of officers, &c.

The action taken on this report by the American section was corraborative of that of the council, with the further proviso that the council should be requested to call a meeting in 1900 at Brussels or some other convenient place, should just requests be ignored.

The rejection by the council of any French invitations should not, however, debar any American member from accepting any invitation tendered personally. As the International Association for Testing Materials is the only engineering association which has held nothing but World's Congresses, it seemed proper that it should arrange for a similar congress at Paris in 1900. For all other engineering associations, however, there is some reason for an independent World's Congress, managed by the French authorities.

The next matter taken up was to find ways and means to provide funds for defraying expenses for publication of proceedings and carrying on investigations. There was at once a hearty response from members and representatives of the great steel works, the former subscribing definite sums in cash, the latter declaring their readiness and willingness to pay assessment levied for these purposes by the Executive Committee.

This voluntary action is a substantiation of the recognition of the fact that the various steel works interested will benefit much from the work of the association.

The technical part of the meeting was begun by a paper by Prof. W. K. Hatt: "Comparison of Steel Plates Under Flexure and Tension."

In this paper it was pointed out by many duplicate tests that the tenacity as well as proportional limit and yield point were not the same when determined from tension and tension tests. The fact was also pointed out that in a certain size of steel plate, 12 x 1¾ inches, the proportional limit and yield points were unusually low, in fact only about 17,000 and 25,000 pounds per square inch, from repeated tests, while all other properties were apparently normal.

The paper called forth a protracted and heated discussion by Christie, Webster, White, Kreuzpointner, Henning, Talbot and Hatt. Especially the steel works representatives questioned the accuracy of such low results, while those who are in the habit of making accurate tests, using micrometers and autographic recorders or other reliable auxiliaries, all confirmed the figures given in the paper.

The association has before it the study and development of 21 problems, to which the American section has added four more. The first of the latter, "On the Present State of Knowledge of Impact Tests," is in the hands of Professors Hatt of Purdue and Marburg of the University of Pennsylvania. The former presented a voluminous paper, going over the bibliography of the subject, but as it is not complete it cannot be presented at the present time. It did, however, call forth some discussions and more particularly inquiries about the European practice, which has demonstrated the practicability of impact test in a remarkable degree.

The preliminary report of the American members of the International Committee, No. 1, on "Standard Specifications of Testing Iron and Steel," was presented by William R. Webster, chairman of the American Sub-Committee. He reported progress and promised to report at the next annual meeting, which it was proposed to hold in May of next year. Max J. Wickhorst, engineer of tests of the C., B. & Q. R. R., made a preliminary report on problem No. 5, "Collection of Data for Establishing Standard Rules for Piece Tests, with Special Reference to Axles, Tires, Springs, Pipes, &c." He reported that the manufacturers and railway managers had courteously answered his inquiries, but that there had been no time to digest the information obtained.

None of the other committees were prepared to report.

The American section was received with great hospitality by many of the largest manufacturers in the Pittsburgh district, and two afternoons were devoted to visiting many places of interest, such as the Carnegie Works, Carbon Steel Company, Cement Works, Westinghouse Mfg. Company and others.

HARDWARE.

Condition of Trade.

THE past week has not been as prolific in changed prices as some of the preceding ones. The demand for goods continues brisk and in some lines business for the present month has thus far exceeded in volume that for the entire month of July. July as a rule ran ahead of the same period last year in the amount of goods distributed. The crowded condition of order books and inability to obtain raw material are causing delays in prompt deliveries of goods by manufacturers. To insure the delivery of goods equal to requirements instances occur where orders for a larger amount of goods than are actually needed are divided among different manufacturers by large buyers, in hopes of covering their necessities. Some manufacturers acknowledge their inability to fill additional orders for months to come. Season goods are being ordered for 1900 delivery at present or advanced prices, indicating that large buyers have confidence in the situation. Foreign demand is excellent and is showing increased volume of business. Foreign requirements are resulting in the introduction of American goods into territory heretofore unoccupied by our manufacturers, or of lines of goods previously supplied by other markets.

Chicago.

(By Telegraph.)

The demand for Shelf Hardware continues most satisfactory. The local jobbers were visited by many of the delegates in attendance at the convention of the Illinois Retail Hardware Dealers' Association held here last week, and a number of substantial orders resulted from these visits. Jobbers have difficulty in maintaining their stocks in an unbroken condition, as manufacturers in many lines are weeks behind in their orders. As a result, the pick up business of the jobbing houses is becoming quite formidable. Cut Nails have been advanced to $2.40 for lots from store. Reports speak most favorably of the crop outlook, and letters received from traveling men making country tours predict a fall business greater than any heretofore witnessed. A notable feature of the demand is the fact that the better class of supplies is ordered, the cheap stuff being more or less of a drug in the hands of jobbers. This is particularly applicable to Builders' Hardware, Mechanics' Tools and Farming Implements. No complaints are heard regarding collections.

St. Louis.

(By Telegraph.)

Dullness does not find a place in the Hardware trade this year. All interests are unanimous in pronouncing the movement of goods as heavy. The recent advance in Tire Bolts, Machine Bolts and Lag Screws has not checked consumption and jobbers with heavy orders now in makers' hands are keen after deliveries. Sales of Black Sheets and Galvanized are increasing as the time for furnace and stove repairs approaches. Galvanized Sheets are a trifle easier as to discount owing to continued low prices of Spelter. Axes are in heavy demand, and it is feared that a serious shortage will develop in these goods. Cross Cut and Wood Saws of all kinds are asked for without let up. The big corn crop promises to cause a rush for Corn Knives and Husking Gloves. Considerable work is being done in the way of providing storage room for this season's crop, and Barn Door Hangers and Rails are already being sharply looked after. Carpenters' Tools are having a sale which clearly indicates the increased labor employed in that trade. Business in Builders' Hardware has shown unprecedented activity, and Cabinet goods are in no less demand. Wire Nails are moving more freely and Barb Wire is in better call. Merchants are visiting this market quite freely this week and are making further preparations for a brisk fall trade. Collections are good and no element of uncertainty has developed as to dealers meeting accounts as they mature.

Notes on Prices.

Wire Nails.—Orders for Wire Nails, as a rule, are for lots indicating an immediate demand, merchants pursuing the policy of sorting up rather than buying in large quantities. Quotations are unchanged, as follows, f.o.b. Pittsburgh, 30 days net:

To jobbers in carload lots	$2.50
To " in less than carload lots	2.52½
To retailers in carload lots	2.65
To " in less than carload lots	2.75

New York.—Local demand keeps up in about the same volume as for the past two or three weeks. The market is firm and prices considered low in comparison with raw material at present values. Quotations are as follows:

To retailers, carloads on dock	$2.80
To " less than carloads on dock	$2.90 to 2.95
Small lots from store	2.95 to 3.00

Chicago, by Telegraph.—There is no change to note in Wire Nails. The excellent demand referred to last week continues, and while mills are running full in anticipation of a heavy fall trade they are unable to accumulate very large stocks, as the current demand makes steady inroads on production. Manufacturers quote on the basis of $2.80 at Chicago for single carload lots, while jobbers are maintaining the price of small lots from stock at $2.90.

St. Louis, by Telegraph.—Mills are still behind orders and jobbers here find a pronounced betterment in demand. No change has occurred in prices, which continue: Single carloads to retailers, $2.85, St. Louis, and smaller lots, $2.95, from stock.

Pittsburgh.—There is a good demand for Wire Nails, jobbers reporting that the small trade are buying liberally. It is also stated that several of the largest mills of the American Steel & Wire Company are behind in orders for Wire Nails. The tone of the market is very strong, and in view of the rapidly advancing prices for raw material still higher prices for Nails are probable. It is pointed out that Rods are close to $45 a ton, and as only 21 kegs of Nails can be made from a ton of Rods the cost of the Rods alone is all of $2 a keg, which leaves only 50 cents for drawing the Wire and cutting the Nails. The American Steel & Wire Company are doing a very large export business in Nails. Prices are unchanged and we quote: To jobbers in carload lots, $2.50; to jobbers in less than carload lots, $2.52½; to retailers in carload lots, $2.65; to retailers in less than carload lots, $2.75, all f.o.b. Pittsburgh; terms 30 days net, to which freight to destination should be added.

Cut Nails.—The distribution of Cut Nails continues in fair volume. Complaint is made that the factories are short on 3d. Fine Nails and that difficulty is experienced in obtaining this size. The following prices are unchanged, f.o.b. Pittsburgh:

To jobbers in carload lots	$2.15
To " in less than carload lots	2.20
To retailers in carload lots	2.20
To " in less than carload lots	2.35

Some jobbers quote $2.25 to retailers in carload lots and $2.40 to retailers in less than carload lots, but the market is not strong enough to make these figures universally adhered to.

New York.—Local conditions remain unchanged since our report last week. Demand shows an increase over corresponding month of the previous year. For single carloads on dock $2.30 is quoted and for small lots from store $2.50. There is considerable irregularity in the market, however, and these figures are often shaded.

Chicago, by Telegraph.—Jobbers have advanced their selling price to $2.40 and report an excellent demand at that figure.

St. Louis, by Telegraph.—Dealers are inclined to tighten on quotations and $2.45 is considered low for small lots out of stock. The sale is fair and prices may take another upward move.

Pittsburgh.—There is a fair demand for Cut Nails and the tone of the market is strong. A good many Iron Nails are being used, for which higher prices are paid than for Steel. Established prices are as follows, f.o.b. Pittsburgh: To jobbers in carload lots, $2.15; to jobbers in less than carload lots, $2.20; to retailers in carload lots, $2.20; to retailers in less than carload lots, $2.35, all f.o.b. Pittsburgh.

Barb Wire.—Domestic demand for Barb Wire is somewhat restricted at this season, but the market is strong at previous quotations, f.o.b. Pittsburgh, net cash 30 days, as follows:

To jobbers in carload lots, Painted	$2.60
" " Galvanized	3.10
" in less than carload lots, Painted	2.62½
" " " " " Galvanized	3.12½
To retailers in carload lots, Painted	2.75
" " Galvanized	3.25
" in less than carload lots, Painted	2.85
" " " " " Galvanized	3.35

Chicago, by Telegraph.—The strong demand for Plain Wire continues. Barb Wire is also selling freely and in view of the season the demand can be referred to as most satisfactory. Prices are maintained at $2.65, Chicago, for single carload lots of Plain Annealed Wire, $2.90 for Painted Barb Wire and $3.40 for Galvanized Wire, with 10 cents per 100 pounds added for small lots.

St. Louis, by Telegraph.—Renewed interest is being shown in Barb Wire at prices unchanged from last week, as follows: Single car lots, Painted, to retailers, $2.95; smaller quantities, $3.05; Galvanized, 50 cents advance on these prices.

Pittsburgh.—There is a moderate domestic demand for Barb Wire, but foreign demand is heavy, the American Steel & Wire Company making shipments to every place where Wire is used. The market is very firm and it is intimated that prices may be advanced again before long. We quote at $2.60 for Painted in carload lots to jobbers and $2.85 in less than carloads, with an advance of 50 cents for Galvanized, all f.o.b. Pittsburgh, terms net 30 days, freight to destination added.

Smooth Wire.—Conditions in the Smooth Wire market remain unchanged, demand keeping pace with productive capacity of the mills. Former prices remain in force, quotations being as follows, f.o.b. Pittsburgh, 30 days net cash:

To jobbers in carload lots	$2.35
To " in less than carload lots	2.37½
To retailers in carload lots	2.50
To " in less than carload lots	2.60

Pittsburgh.—There is a heavy demand and the trade in Smooth Wire this year has been much the heaviest ever known. The tone of the market is strong and it is likely prices will be higher. We quote: To jobbers in carload lots, $2.35; to jobbers in less than carload lots, $2.37½; to retailers in carload lots, $2.50; to retailers in less than carload lots, $2.60, all f.o.b. Pittsburgh; terms net 30 days. The charge for galvanizing is 50 cents on sizes from Nos. 6 to 14 inclusive; on Nos. 15 and 16, 85 cents, and on Nos. 17 and 18, $1.10.

Files.—The following is an official announcement by the File Manufacturers' Association of the United States as the result of a meeting held August 23 at the Astor House:

At a meeting of the File Manufacturers' Association of the United States, held this day at the Astor House, New York, it was voted that an advance of 10 per cent. in all prices of Files and Rasps be adopted, to take effect at once. The continued scarcity of raw material and great increase in cost of same and the unsatisfactory prospect of improvement in this respect should impress the trade with the fact that a wise business policy calls for the realization of this advance on stocks in their hands rather than to part with them at concessions in price when the ability to replace them is uncertain.

THE FILE MANUFACTURERS' ASSOCIATION OF THE UNITED STATES. ELIAS G. HELLER, President.

Glass.—The programme of the glass workers, previously outlined, was carried out by them at a conference held last week between the Wage Committee of the associated glass manufacturers and that of the blowers and gatherers. The manufacturers refused to grant the workmen's demands, at which the latter stated that they would prepare a scale of wages for the independent factories—those outside the association—so that they could start up September 15, which would put in operation about 500 pots or their equivalent. The blowers and gatherers are not in harmony with the cutters and flatteners, who are the other branch of glass workers, in arranging a wage scale, and it is hinted that the manufacturers may arrange with the latter not to work for outside factories and thus try to prevent their starting up. According to press reports the prospects are not favorable for the formation of the new Window Glass Company or trust. Eastern jobbers quote 80 and 15 per cent. discount on American Window Glass, while the American Glass Company's prices are as follows:

Districts.	A.	B.	C.	E.
5000 boxes or more	85	85	.....	85
Carloads	80 & 15	80 & 15	80 & 20	80 & 15
3000 boxes or more	80 & 20	80 & 20	.....	80 & 2½
1000 boxes or more	.....	.....	85	.....

Paints and Colors.—*Lead.*—Under date of August 22 the National Lead Company announce an advance in Lead products as follows:

White Lead, Dry or in Oil, Red Lead or Litharge in Kegs.

	Cents.
In lots of less than 500 pounds, net	6½
" " 500 pounds and over	6

Dry White Lead in barrels, ½ cent per pound less than price in kegs.

Red Lead and Litharge in barrels and ¼ barrels, same as price in kegs.

White Lead in 12½-pound tin pails (packed in 100-pound cases), 1 cent per pound over price in kegs.

White Lead in 25-pound tin pails (packed in 100 or 200 pound cases), ½ cent per pound over price in kegs.

White Lead assorted in 1, 2, 3 and 5 pound cans (packed in 100 pound cases), 1¼ cents per pound over price in kegs.

Terms: On lots of 500 pounds and over, 60 days or 2 per cent. discount for cash if paid in 15 days from date of invoice, f.o.b. New York. To make either of above required quantities, any assortment of packages of either or all of the above articles may be counted.

An advance in the price of Lead products has been expected by the trade, and the company have had the matter under consideration for some time owing to the advance of raw material. Large buyers have considered this line a good purchase and have placed contract orders accordingly. The outlook for a large fall trade is promising.

Oils.—*Linseed Oil.*—City crushers have eliminated differences in the price of Linseed Oil and uniform quotations are now made as follows: City Raw in lots of five barrels or more, 40 cents per gallon; in lots of less than five barrels, 41 cents per gallon. Calcutta Raw is quoted at 60 cents per gallon. Boiled Oil is 2 cents extra per gallon. Oil is reported scarce and higher prices before new Oil reaches the market are anticipated by some.

Spirits Turpentine.—The Turpentine market has shown little variation during the past week and values are the same as at our last report. Supplies reaching this point have increased holdings, but prices are not attractive to large buyers. Business is confined to jobbing lots on the basis of 51½ cents for Southerns and 52 cents for machine made barrels.

The Illinois Retail Hardware Dealers' Association.

THANKS to the vigorous efforts of the Chicago Retail Hardware Dealers' Association, a good start has been made by the Illinois Hardware dealers in organizing a State association. Last week the first meeting of Illinois merchants for this purpose was held in Chicago. They met in Schoenhofen's Hall, at Milwaukee and Ashland avenues, holding their opening session on the afternoon of the 16th inst. Those in attendance were as follows:

Ehler Goettsche, Chicago.
Fred. Kurtz, Chicago.
Theodor Krueger, Chicago.
Dennis McLaughlin, Chicago.
W. J. Krueger, Chicago.
J. L. Smith, Chicago.
John Hora, Chicago.
Geo. A. Engelhardt, Chicago.
Hans Fehr, Chicago.
J. P. Bonhardt, Chicago.
H. E. Gnadt, Chicago.
A. E. Lott, Chicago.
R. Freytag, Chicago.
E. H. Beiersdorf, Chicago.
Ernst Spindler, Chicago.
Anthony J. Engelhardt, Chicago.
Wm. Bittel, Peoria.
L. M. Reeves, Peoria.
J. A. Hunter, Peoria.
Emil Sander, Chicago.
A. Ruhling, Chicago.
Anton Pophal, Chicago.
Brower & Agnew, Stillman Valley.
E. R. Peyton, Pekin.
Aug. Weyrich, Pekin.
F. E. Bonney, Paxton.
Z. T. Miller, Bloomington.
G. S. McCurdy, Bloomington.
Geo. R. Keeling, Amboy.
L. Babst, Kankakee.
E. R. Schlick, Chicago.
H. J. Bagley, Tuscola.
D. D. Helde, Pekin.
Anderson Meyer, Pekin.
H. L. Peterson, Chicago.
Otto L. Schulte, Freeport.
H. H. Freye, Crystal Lake.
S. A. Crissey, Marengo.
L. Rosenberg, South Chicago.
George J. Pfeeler & Co., Chicago.
W. B. Costello, Chicago.
C. Carr, Jr., Chicago.
C. H. Reynolds, Austin.
Fred Ruehling, Chicago.
B. H. Taber, Richmond.
A. T. Mathieson, Chicago.
L. F. Schroeder, Barrington.
Aug. Greenheid, Chicago.
Rud. Wienig, Chicago.
Dan. Holden, Bloomington.
L. M. Matthews, Chicago.
F. S. Orton, Chicago.
G. E. Gundling, Chicago.
W. Kasten, Chicago.

The meeting was called to order by President D. McLaughlin of the Chicago Retail Hardware Dealers' Association, who made the following address of welcome:

Mr. McLaughlin's Address of Welcome.

The object of this convention is to get the retail Hardware dealers of the State to organize the same as those of our sister States. A committee was appointed by our local association on the last Friday in April, and communications were sent to dealers in the State. There have been between 1800 and 1900 communications sent to different parts of the State, asking the Hardware dealers to meet, and I understand from the secretary of the committee that we are going to have a large attendance here. There is no reason why the Hardware dealers of Illinois should not have an organization the same as Winconsin, Iowa, the Dakotas, Indiana, Michigan, Missouri and other States. The Chicago Retail Hardware Dealers' Association have been organized for the last six years. They number in the neighborhood of 125, with a prospect, with the names we have in view, of soon running up to nearly 150. The organization of the retail Hardware dealers throughout the State will not conflict with the city organization. I am glad to have the honor of being temporarily the chairman of this organization, and if we get the work done contemplated by your programme I am sure the new State association will be a great success. There is nothing I can see at the present time that will prevent our making it a success.

Mr. Goettsche's Report.

The committee appointed to take the necessary measures to form an association, consisting of E. Goettsche and Fred. Kurtz of Chicago, were called on for a report of the steps taken to awaken an interest among the dealers throughout the State. Mr. Goettsche made an interesting statement, showing the great amount of work which the committee had accomplished and the extensive correspondence they had conducted.

Temporary Officers.

On motion of N. B. Costello of Chicago, the following were elected temporary officers of the convention: D. McLaughlin of Chicago, chairman, and Otto L. Schulte of Freeport, secretary, Mr. Goettsche asking to be excused from serving in the latter capacity.

Committee on Constitution and By-Laws.

After some discussion as to preliminaries toward organization, on motion of E. A. Lott of Chicago, the convention proceeded to elect a committee to draft a constitution and by-laws, the following list being chosen: L. M. Reeves of Peoria, F. E. Bonney of Paxton, Otto L. Schulte of Freeport and Geo. A. Engelhardt and E. R. Schlick of Chicago.

Entertainment Committee.

A Committee on Entertainment, consisting of Theodor Krueger and Anthony J. Engelhardt of Chicago, had been appointed previously by the Chicago association, but the three following names were added by the convention: A. E. Lott, L. Rosenberg and W. B. Costello, all of Chicago.

A Motion by L. M. Reeves

of Peoria was carried that after the adoption of the constitution and by-laws the enrollment of members should be made, to be followed by the election of permanent officers.

THURSDAY MORNING.

Chairman Reeves of the Committee on Constitution and By-Laws presented the committee's report, in which but few alterations were made by the convention. It provides, briefly, that the name of the organization shall be the Illinois Retail Hardware Dealers' Association; the officers shall consist of a president, a vice-president, a secretary and a treasurer, who will also constitute the Executive Committee in connection with five members to be annually elected; an Investigating Committee of three members shall be elected annually, to investigate all complaints and endeavor to adjust them amicably, and in the event of their failure they shall refer the complaints to the Executive Committee; the annual meetings shall be held on the last Tuesday in February; the fee for membership shall be $3, which covers the dues for the first year, the annual dues to be $3; the salary of the secretary shall be $100, excluding expenses for postage and other necessaries; and that the secretary and treasurer shall each be placed under $500 bond, the cost to be borne by the association.

Temporary Treasurer.

E. Goettsche was made temporary treasurer to receive fees from the members, who proceeded to enroll their names so as to entitle them to vote.

Committee on Nominations.

On motion of Z. T. Miller the chairman was directed to name a committee of five, including himself, to nominate officers, and designated the following four: L. M. Reeves, Z. T. Miller, Geo. A. Engelhardt and O. L. Schulte.

THURSDAY AFTERNOON.

The Committee on Nominations reported the following list: For president, Z. T. MILLER of Bloomington; vice-president, DENNIS MCLAUGHLIN of Chicago; secretary, LEWIS M. REEVES of Peoria; treasurer, THEODOR KRUEGER of Chicago; other members of the Executive Committee, D. D. VELDE of Pekin, GEO. A. ENGELHARDT of Chicago, O. L. SCHULTE of Freeport, S. A. CRISSEY of Marengo, and EHLER GOETTSCHE of Chicago.

Unanimously Elected.

The convention unanimously elected the entire list named, and a committee consisting of Messrs. Costello, Bonney and McLaughlin was appointed to escort the new officers to the platform. President Miller made an exceedingly appropriate speech of thanks for the honor conferred and promised that his best efforts would be directed toward the promotion of the success of the association. He was followed by the other officers in turn, each of them entering into the spirit of the occasion and pledging themselves to work diligently for the benefit of the organization.

Investigating Committee.

An election for members of the Investigating Committee resulted in the following choice: Fred. Kurtz of Chicago, James A. Hunter of Peoria, and F. E. Bonney of Paxton.

Systematic Organization.

An interesting address was made by Mr. Bonney on the subject of systematic organization. Starting with appropriate anecdotes, which neatly prepared the way for what he wished to drive home, he forcibly impressed upon the members the point that united they could do what it would be utterly useless for one man to try to do.

Ehler Goettsche read the following paper on

The Objects of the Association.

As we are assembled in convention to further the interests of the retail Hardware trade, I think it would be proper to look at the objects of a retail Hardware dealers' association for the State of Illinois. Why should we have an association and why should we organize? Experience teaches the objects of an association should be as follows:

1. To create a more friendly and social feeling among competing dealers and thus do away with a great deal of jealousy toward each other. This organization, in the first place, will help you and your Hardware neighbor in many instances, where you or he is short of an article and in numerous other ways.

2. To agree upon a shortening of business hours when trade is dull, and especially to close every Sunday.

3. To hold social gatherings, such as concerts, excursions, picnics, &c. These have proved to be great attractions in our Chicago association.

4. To protect ourselves against slow payers or people who do not pay, or, as we may call them, "dead beats," which will save a merchant against loss in many instances.

5. To stipulate and agree upon uniform retail prices on as many articles as possible.

6. To find ways and means of buying goods together wherever an opportunity is opened. This, I can assure you, is a most important matter—to combine and operate together as solid as a rock—and it is our strongest reliance to meet the competition of department stores and catalogue houses.

7. To form local organizations in every city and every town in the State, in order to accomplish all of these objects. With a local organization they can all be reached; without it it cannot be done. A great deal of proof on these points can be furnished by our Chicago organization.

8. The last and most vital point. I hereby appeal to the retail Hardware trade of Illinois, after we have accomplished a complete organization throughout the State, to agitate and emphasize the importance of people keeping out of the department stores and catalogue houses, and then sell our own goods and better goods at reasonable prices. We will then win and the department stores must die.

Country Business Methods.

Mr. Costello said that in order to keep things moving he would like to hear from some of the country members about how things are managed in the country. People in Chicago know little about country business and country methods. He had in mind the name of Mr. Bonney of Paxton. Mr. Bonney responded as follows:

My experience in the retail Hardware business extends over only about six or seven months. I am located in a country town of about 4000. The competition we meet there is composed of department stores and catalogue houses of Chicago and outlying cities. As far as the department stores are concerned, they have not cut very much figure with us as yet. As far as our own business is concerned, we pursue the plan of what we call

"FIGHTING THE DEVIL WITH FIRE."

We simply adopt some of the department store methods. We have some good windows. We box them all in and make a very attractive background, and we dress them up, as a rule, every week, and we hang various assortments of articles, and we put the price on every article right out where people can see it. In addition to that we keep a bulletin board on the sidewalk. We simply have it headed "Our Market. Watch It." We have it made of galvanized iron, so arranged that we can slip pieces of paper in and out, calling attention to

SPECIAL ARTICLES AND SPECIAL PRICES,

and keep that shifting all the time. When we find some line they are running in upon us, we go to the manufacturer and buy those in sufficient quantities so we can get a specially low price on them. We are then in position to put those out in front and sell them at cost or a little less, and whatever we lose we simply charge up to our advertising department. While we carry some of these goods, we use them more to get the people in the store. After we show them these goods we try to lead them on to a better class of goods, and educate the people to the fact that it pays them to buy a better article.

CATALOGUE HOUSES.

In regard to the catalogue houses, we consider them a greater injury to us than we do those department stores. We have shoved under our nose nearly every day the catalogues of Montgomery, Ward & Co. and Sears, Roebuck & Co.; in fact we keep those catalogues on our shelves and we are not ashamed to show them to our customers at any time they want to see them. On most lines of Hardware articles outside of Guns, &c., we can meet their prices and still make a little money—that is, on a cash deal. For instance, we handle Bicycles. We have customers who come in and say: "We can buy as good a wheel as you have there for $23.50." If we can get hold of the same wheel we keep it and meet the prices. We say: "There is the wheel they ask you $23.50 for; we will sell you that wheel for $23 cash." We can do that and make some money. The result is that in nine cases out of ten we sell them a better wheel.

A DIFFICULTY.

The question here comes up of the value of our organization and also the value of getting just as many men as possible into it. Suppose in our town we have five retail Hardware dealers, and three of those dealers belong to this association and two do not. Now, here comes a salesman of a house who make a legitimate line of goods and who sell only to the legitimate Hardware

trade, and he comes to us and quotes us a discount of 50 and 10. The price is satisfactory to us. Right after him comes in a man from a factory or jobber that is selling every department store and every Cheap John fellow all over the country, and he has a line of goods that are practically the same in material, finish and so forth, and he quotes us a discount of 50 and two 10's. Ordinarily we are bound by our agreement, but there

Z. T. MILLER, PRESIDENT.

are two competitors outside of this association and we know they will have an advantage over us. If you don't get your association pretty effective and pretty thorough there are those two fellows outside of the association who have seemingly got an advantage, and it is a pretty ticklish place to put a buyer in when he wants to be sure he is getting down to bed rock.

Mr. Bittel's Remarks.

I have listened very attentively to the paper read by Mr. Goettsche and to the speech of Mr. Bonney in regard to local associations. About five years ago I endeavored to organize an association at Peoria. I was told it was impossible to do it. I gave it up. I tried it again last March. We issued a call for all of the dealers in the city of Peoria to meet and organize. About 15 Hardwaremen answered that call. We talked the matter over of organizing and I had the honor of being elected the first president and Mr. Reeves was our secretary. Since that time we have met every week on Wednesday night. As far as sociability is concerned, we never had before such a good feeling among dealers as we are having now. In former years a dealer would say of another one, "There is that son-of-a-gun that beat me out of that sale." We are now on the best of terms with one another.

Daniel Stern read a paper entitled

A Present Opportunity.

A Persian fable says that a man waited patiently for 1500 years for the gate of opportunity to open, and at the end of that time he dozed away for a single half hour, but during that half hour the gate opened and closed again before he awakened. Shakespeare voiced the same sentiment when he declared there was a tide in the affairs of men which taken at the flood led on to fortune.

MERCANTILE INCOMES ARE UNSTEADY.

Commercial success lies mainly in promptly grasping opportunities as they arise and in making money in the years of the fat kine so as to have resources when the lean kine of hard times make their appearance. Everybody in business knows that a merchant's income is not like that of his clerk, steady and certain. Some weeks the profit side of the ledger will show only a meager pittance of profit, other weeks substantial gains will be shown. This is as true of years as of weeks. Those present know that there have been years when profits were so small, things looked blue and annoying doubts as to ability to sell Hardware necessarily arose. Then happily there were other years when profitable goods had a run and the world took on the roseate tinge it has to the eyes of the successful man.

PRESENT YEAR SHOULD BE A GOOD ONE.

The present year should be one of exceptional profits to the retail Hardware dealers in the busy cities and prosperous farming communities of the great State of Illinois. The farmers and mechanics and professional men of Illinois will buy thousands of kegs of Nails, thousands of gross of Cutlery, miles of Barb Wire, hogsheads of Paint, acres of Tin Plate and Stoves, Washing Machines and other Hardware goods in vast quantities. This great demand will be filled by the Hardware merchants of this State, and it depends on them whether they grasp the opportunity involved to make money or through apathy and timidity sell their goods on hand at the old prices, and, as it were, actually put up umbrellas to keep off the shower of prosperity so generally falling on every hand.

THE PRICE MARK FETICH.

I will guarantee that to-day I can go into Hardware stores in Illinois as a customer and buy goods at retail at a lower price than the dealers can replace the article from their jobber. There are dealers to whom a price mark seems as sacred as his ivory fetich is to the superstitious Senegambian, and if a Hatchet has once been marked xy or y2, meaning 50 or 75 cents, no excuse of common sense seems powerful enough to get them to change, no matter how high the wholesale price of Hatchets may rise.

SHOULD LEAD, NOT FOLLOW.

Too many dealers seem to have had the idea of the boyish pastime of "stunts," or "follow the leader," pretty deeply ingrained in their natures, as, in a commer-

L. M. REEVES, SECRETARY.

cial crisis like the present, they anxiously hang back waiting to see what the "other fellow" will do. Instead a dealer should take the initiative himself and advance prices. He will then see how quickly his fellow merchant will fall in line and do likewise as soon as he hears the news. Happily, owing to the grand work of various commercial associations, the mercantile lesson has been widely taught that the end and aim of merchandizing is to make a decent living and not prove your pro-

ficiency at the foolish game of "Beggar my neighbor, even if my little ones wear rags also." The "other fellow" probably has sense enough to see that he is better off at selling half the trade at a reasonable profit than do a lion's share of it at a narrow and unsatisfactory margin of profit.

SHOULD NOT FEAR THE PUBLIC.

Thanks to the influence of the association idea, the dealer has learned that his competitors are human beings like himself and that if he lets his little boy play in the vicinity of his competitor's home, the chubby four-year-old is in no danger of being boiled and eaten, but he has yet to learn that the buying public is not the gruff, determined body it would fain have you think it is, but is not particularly arrogant and is more or less amenable to reason, when it perceives by the dealer's expression that what he says goes. Of course Mr. A. or Mrs. B. may feign great amazement to learn that a Cook Stove or a keg of Nails doesn't sell for what it did last January, when "my sister bought her Cook Stove, you know," or Mr. B. roofed the hen house, but as readers of the daily papers they know that Iron has gone up and that more associations than I can think of have been hurriedly formed and convened in the Auditorium Hotel, Chicago, or the Waldorf-Astoria, New York, and after a harmonious meeting have unanimously decided that owing to the increased price of raw material a 15 per cent. advance should be made at once. Dealers might do well to put a few clippings up on their wall, calling attention to the boost made in prices the last few months.

TACT IS ESSENTIAL.

It needs tact, of course, for the dealer to send his customer away, saying unkind things about the naughty Nail trust and sympathizing with the Hardwareman as its victim, but the dealer will find it is not so very difficult a thing as he imagines, and that it is a great deal more profitable than to sell Nails at less than present prices, owing to a craven fear of losing a customer by asking for a legitimate profit.

A DAY OF REACTION CERTAIN.

But there is a phase of the matter that dealers should consider as a matter of self preservation. Prices of all kinds of Iron and Steel have been steadily advancing, but they will not advance forever. A day of reaction is as certain as to-morrow's sun; it may come next month, it may come next year, it may not come until 1904 or 1905, but sooner or later quotations will tire of mountain climbing as an amusement and take to tobogganing instead, and dealers who have overbought when prices were high will find that they can only get current market prices for their goods and must sell at a loss. Every far seeing retailer knows that when prices begin to fall he will be caught on a larger or smaller percentage of his stock and will lose accordingly. When a man sees the necessity staring him in the face of at some time selling on a falling market he should also see that the only remedy lies in taking prompt and full advantage of the oportunities afforded of selling on a rising market.

DEALERS JUSTIFIED IN ASKING LEGITIMATE PROFITS.

I sincerely hope none of the gentlemen I see before me are in the Hardware business for their health. The laborer is worthy of his hire and the Hardware dealer is justified in every legal and moral sense in securing profits which pay a fair dividend on his capital, give a decent recompense for his own time and which furthermore provide a set-off against past or future losses, caused by unforeseen fluctuations of the market.

Department Store a Bugaboo.

B. H. Taber, Richmond, thought the department store more of a bugaboo than a real danger. He had had more of that competition to contend with in the past two years than ever before, yet never made more money than in that time. People need only a little dose of department store or catalogue house goods to satisfy them. The competition as to prices can easily be met.

Cook County Retail Dealers' Association.

Mr. Gilman, secretary of the Cook County Retail Dealers' Association, was requested to make some remarks. He said the organization was formed for the purpose of abolishing child labor, preventing deceptive advertising and incidentally abolishing department stores. The membership of this association now runs up to thousands. Business men's families patronize the department stores when they should patronize the stores of one another. An association of all kinds of retail business men will effect a change in this respect. Much can be done by local business men's associations in preventing the people of small towns from visiting cities to purchase their goods in the large department stores, to the detriment of the local dealers.

President Miller called attention to the expense which had been incurred in arranging for this convention by the Chicago Retail Hardware Dealers' Association, and asked for a statement of the amount. Mr. Goettsche of the local committee said that it would be furnished on Friday morning.

An Inquiry.

A letter was read from F. S. Kretsinger, president of the Iowa Farming Tool Company, Fort Madison, Iowa, calling attention to the fact that catalogue houses are of two kinds, one furnishing catalogues with prices to consumers and the other soliciting the trade exclusively of retail merchants who are seeking the cheaper class of goods. He asked for an expression of opinion upon the propriety of manufacturers selling to the latter class of catalogue houses. A committee, composed of W. J. Krueger and E. A. Lott of Chicago and Wm. Bittel of Peoria was appointed to consider this question and report to the convention.

Committee on Resolutions.

On motion of Mr. Lott the president was directed to appoint a committee of three to draft resolutions relative to the department stores and catalogue houses, and named the following: W. B. Costello, Dennis McLaughlin and F. E. Bonney.

Tally-ho Ride.

Immediately after adjournment the members of the association and their friends were given a tally-ho ride through picturesque Lincoln Park and the northern portion of the city, enjoying the fading hours of the day on the park drives and boulevards, and spending the evening in Bismarck Garden, a popular musical resort. The members were photographed en route through the park.

FRIDAY MORNING.

The committee to whom was referred the communication of the Iowa Farming Tool Company presented the following report:

Your committee to whom was referred the communication from the Iowa Farming Tool Company would report as follows:

That it is the sense of the Hardware dealers of this convention that all establishments that parade before the public as continually doing business for their health or at a loss or at some manufacturer's loss, offering miscellaneous assortments of goods at prices they purport to be way below cost of production, be branded as pirates, a menace to any trade, and we certainly deem it to the interests of the manufacturer as well as the jobber and retailer that such houses be avoided, and business confined to the legitimate trade. Catalogue houses that solicit the consumers' business certainly should be avoided by any manufacturer that expects to do business with the retail merchants throughout the country. Catalogue houses who solicit the retail trade are no advertisement for the manufacturer, for the reason that the retail merchant buying from

their class looks for bargains only, as unless he can buy for less money from them than from his regular jobber he will certainly give the legitimate dealer the preference. This association has not as yet progressed far enough nor given this subject sufficient consideration to be able to give a further opinion in the matter, but this committee would recommend that the same be again taken up at the next meeting in February, 1900. Signed by W. J. Krueger, A. E. Lott and Wm. Bittel.

The report was received and approved and the committee discharged.

Peoria Selected

The selection of a place for holding the next convention was taken up and Peoria, Springfield, Bloomington and Chicago were named. A ballot was taken and Peoria received a large majority of the votes cast. Mr. Bittel of Peoria expressed his thanks for the favor shown his city, and in behalf of the Peoria merchants promised that they would do their best to entertain the convention.

Mr. Goettsche of the Committee on Arrangements presented a statement of the expenses incurred in preparing for the convention, amounting to $97.45, which the convention ordered to be paid by the treasurer.

Resolutions.

The president called for the report of the Committee on Resolutions, and Mr. Bonney of that committee read the following report, which, upon motion of Mr. Velde, was received and the committee discharged:

Resolved, That we, the members of the Illinois Retail Hardware Dealers' Association, assembled in this our first annual convention, congratulate ourselves upon the success with which the organization movement has been inaugurated.

That as the future and continued success of this movement depends upon the unanimous and enthusiastic support of the dealers of the State, we urge every retail Hardware dealer in Illinois to unite with us in forming one of the largest and most successful associations in the country.

That we extend our greeting to the like associations in our sister States, and pledge to them our earnest support and co-operation in every effort to advance the interests of the retail Hardware trade of the country.

That we urge all manufacturers and wholesale dealers in general Hardware, Stoves and Tinware, whose interests are identical with our interests, and whose goods are marketed largely through our channels, to co-operate with us in every way possible to restrict the sale of Hardware to the legitimate retail Hardware trade.

That we are heartily in favor of the organization of a National Retail Hardware Dealers' Association.

That the thanks of this association are hereby tendered to Hibbard, Spencer, Bartlett & Co., P. & F. Corbin, Geo. W. Trout & Co., Wallace, Robinson & Co., Geo. H. Bishop & Co., Falcon Iron & Nail Company, Reading Hardware Company, Fuller & Warren Company, E. C. Atkins & Co., Bryan Mfg. Company, Peninsular Stove Company, Cook & Van Evera Company, Chicago Stove Works, Rathbone, Sard & Co., Brand Stove Company, and C. Sidney Shepard & Co. for the generous reception and entertainment tendered this association during its session.

That we also express our appreciation to the various trade journals for the assistance and publicity they have given to our efforts along the line of trade organizations.

Resolutions of thanks were subsequently passed to the Chicago Retail Hardware Dealers' Association for the many favors shown and to the owner of the hall for its free use by the association.

A motion by A. E. Lott was carried which provides that before the printed copies of the constitution and by-laws are distributed to the members the secretary shall see that nothing is contained in them but what has been adopted by this association.

After resolutions were passed empowering the secretary to purchase stationery and other needed supplies, President Miller made his closing address, urging the members among other things to write to him making suggestions relative to the programme for the next meeting.

The convention then adjourned.

Z. T. Miller.

The first president of the Illinois Retail Hardware Dealers' Association, Z. T. Miller, was born in Kutztown, Berks County, Pa., March 14, 1852. He was educated at the Keystone State Normal School, located in the town, afterward becoming secretary of the institution. His business career began as a member of the firm of R. Miller's Sons, Carriage manufacturers. In 1876 he removed to Indiana and conducted a stock farm until 1889, when he returned to his native place and took charge of his father's Hardware business. In 1892 he sold his entire interests in Pennsylvania and turned his face westward again, locating at Bloomington, Ill., becoming a member of the Hardware firm of Myers & Miller, successors to Clark, Churchill & Co. On January 1, 1898, he purchased his partner's interest and organized the present firm of Z. T. Miller & Sons, retailers of Hardware and Stoves. Mr. Miller is a man of experience in presiding over deliberative bodies, has the happy faculty of talking well and will make a capital executive head for the new organization.

Lewis M. Reeves.

The first secretary of the Illinois Retail Hardware Dealers' Association is Lewis M. Reeves of Peoria. He was born in Bloomington, Ill., August 22, 1871. His education was obtained in the State Normal University at Bloomington, Phillips Exeter Academy in New Hampshire and the Ohio Wesleyan University at Delaware, Ohio. Mr. Reeves has had a varied business experience and served last year in the United States Army as a member of the First Illinois Cavalry. At the beginning of the present year he became a member of the firm of Balzer & Reeves, succeeding B. E. Balzer. He has had some preliminary training for the post he now fills, having been secretary of the Peoria Retail Hardware Dealers' Association from the organization of that body on March 17, 1899. The Peoria association is a strong one, comprising in it practically every Hardware dealer in that city.

ON THE OUTSKIRTS OF THE CONVENTION.

E. C. Atkins & Co., the Indianapolis Saw manufacturers, were well represented. Julian W. Perkins, assistant secretary, came from the home office, having as colleagues at the convention L. H. Rounds, representing the company in Illinois, and S. M. Perrigo, with C. M. Avery, representative in Chicago. Fine exhibits of Saws were made both at the Sherman House and the convention hall, and neat souvenirs were distributed.

The Chicago Stove Works, Chicago, exhibited fine samples of new goods, consisting of Gold Coin Ranges, Cook Stoves and Heaters, in a room adjacent to the convention hall. In charge of the exhibit were two of the company's most popular salesmen—namely, J. F. Cady and Robert Ingram.

The J. D. Warren Mfg. Company, Chicago, exhibited numerous photographic and colored views of their ingenious and artistic Shelving and Cabinets for Hardware stores. On Friday the company presented all in attendance with a very pretty buttonhole bouquet and a correspondingly fragrant cigar.

The Elliott Varnish Company, Chicago, made an exhibit and distributed numerous sample cans of their Egyptian Heat Proof Jet Black Enamel, put up in small cans suitable for handling by the Hardware trade.

Geo. H. Bishop & Co., Saw manufacturers, were represented by John J. Sinzich, manager of the Chicago

branch, and C. A. Dager, representative for the State at large. Mr. Dager also represents the Ranney Refrigerator Company, Kearney & Foot Company and C. E. Jennings & Co. They distributed the handsome catalogue of Geo. H. Bishop & Co., just received from the press.

C. R. Morgan of Akron, Ohio, an active member of the Ohio Retail Hardware Dealers' Association, dropped in on the first day to see the new association make a start.

Robert M. Wells of the Wells & Nellegar Company, Chicago, was in attendance for a portion of the proceedings as an interested listener.

The W. Dewees Wood Company of Pittsburgh were represented by Fred. C. Shays, who distributed planished iron match boxes as souvenirs.

Hibbard, Spencer, Bartlett & Co., Chicago, had an able force in attendance, consisting of J. H. McCartney, H. Beneke and R. Blum, who apparently knew everybody.

The Reading Hardware Company were represented by W. H. Bennett and W. C. Matthews. Mr. Bennett has been manager of the company's Western branch for so many years that he is now one of the veterans, universally popular in the retail trade.

The Peninsular Stove Company were represented by H. L. Hoffman and W. T. Whiffen, widely known among Illinois dealers.

Among others present were C. W. Jones of the Fuller-Warren Company, D. W. Van Evera of the Cook & Van Evera Company, Geo. W. Trout of Geo. W. Trout & Co., manufacturers' agents and jobbers; B. E. Hamilton, representing manufacturers of Wire Nails, Wire, Cut Nails, &c.; W. B. Lyman of the Brand Stove Company, Walter S. Rait of the Richardson & Boynton Company, C. H. Garver of the Bryan Mfg. Company and J. L. Morris, manufacturer of Stove repairs. Representatives of other manufacturers and jobbers were undoubtedly present, but their names were not ascertained.

The Chicago Hardware jobbing houses and branch houses of Hardware manufacturers contributed liberally to a fund for the entertainment of the retailers.

The Chicago Retail Hardware Dealers' Association distinguished themselves for their hospitality. They furnished a luncheon to all present on the first day and a dinner to all on the second and third days. The individual members considered themselves specially liable for the entertainment of their out of town colleagues and each did all he could to make them enjoy their visit to Chicago. The Chicago dealers worked with all their might to make the State association a success.

Coleman Hardware Company.

THE COLEMAN HARDWARE COMPANY, 59 Dearborn street, Chicago, Ill., are sending to the trade a tastily printed circular illustrating their line of Toy Banks, Sad Irons, Iron Kettles, Iron Spiders, &c. The wood handle Toy Sad Irons are referred to as having no superior for finish and attractiveness, being all highly polished and nickel plated. The handles are of polished hard wood. The Iron Spiders and Iron Kettles are finished in white metal. The manufacture of this line of goods is a new departure with this company, who claim that they are the only concern in the West making the line described in their circular.

Request for Catalogues, &c.

WELLING & BONNOITT, Darlington, S. C., are opening a branch store at Timmonsville. The company wholesale as well as retail a line including Shelf and Heavy Hardware, Farm Implements, Stoves, Sporting Goods, Harness, &c. They will appreciate catalogues and price-lists relating to these lines.

Hardware Organizations.

Wisconsin Retail Hardware Association.

A meeting of the Executive Committee of the Wisconsin Retail Hardware Association will be held at the Republican House, in Milwaukee, on September 5.

Oregon and Washington Retail Hardware Dealers' Association.

The Oregon and Washington Retail Hardware Dealers' Association is the latest addition to the list of State Hardware organizations which are springing up throughout the country. At a meeting recently held the following officers were elected: President, FRANK DAYTON, Portland, Ore.; first vice-president, E. G. CRAWFORD, Vancouver, Wash.; second vice-president, R. D. WILSON, Oregon City, Ore.; secretary, H. K. BROWN, Portland, and treasurer, A. A. DEKUM, Portland. The Executive Committee comprises Messrs. DAYTON, CRAWFORD and WILSON, and H. C. COLEMAN, Portland, and V. A. AVERY, Portland.

Any person who is engaged in the Hardware business, known and recognized as a regular retail Hardware dealer in good standing and carrying a general assortment of stock is eligible for membership in the association.

The following resolutions were adopted by the association:

Whereas, The manufacturers and wholesale dealers in general Hardware, Stoves and Tinware persist in selling to catalogue supply houses and department stores, and to the retail trade at wholesale prices, to our injury and detriment, placing us toward our customers in the light of extortioners, causing endless trouble; and

Whereas, The system of protecting us from this wrong is ineffective, it is absolutely necessary to perfect such a system by united action that will remove these evils from which we have suffered for years. Therefore be it

Resolved, That the members of this association confine the purchase of Hardware, Stoves and Tinware to manufacturers and wholesale dealers who sell goods at wholesale prices only to firms that are regularly engaged in the retail Hardware business, as defined in these resolutions.

Resolved, That it is the sense of this association that the interpretation of the term "Retail Hardware Dealer," as set forth in the above resolution, to entitle him to purchase Hardware, Stoves and Tinware, be construed to mean any person having an established place of business and carrying a line of Hardware, Stoves and Tinware, and such goods as are usually kept in a first-class Hardware store; and in cities of less than 5000 population, all persons carrying a general line of Hardware in connection with any other kind of merchandise.

Resolved, That the following are exempt from these resolutions: The United States Government, State, county and city institutions, railroads, gas, water and electric light companies, and such manufacturing industries and companies as the Executive Committee may approve, for such goods as are necessary for their respective lines of business.

Resolved, That any manufacturer or jobber in Hardware, Stoves or Tinware, furnishing goods contrary to the foregoing resolutions, either by themselves, employees or agents, shall be considered as disapproving the above resolutions.

Resolved, That this association shall, as far as it is in its power, keep a record of all goods sold, and by whom sold, to catalogue houses and department stores, and of all other violations of these resolutions.

Resolved, That any member purchasing goods from any manufacturer or jobber who has been listed by the Executive Committee as disapproving of these resolutions shall be subject to a fine, at the discretion of the Executive Committee.

Resolved, That every member of this association is constituted a committee of one, and is expected to report to the proper officers in this State any violation of these resolutions.

Resolved, That these measures are just and necessary for our welfare, and a rigid enforcement is demanded.

Resolved, That this association indorses the above, and urges its officers to use their best efforts to bring about the formation of a national association, with the end in view that a uniform system of protection for the trade shall prevail throughout the entire country.

Charles L. Mead.

CHARLES LEVI MEAD, the subject of this sketch, died of dilatation of the heart August 19 at Norfolk, Conn., where he has had a summer cottage for years. Professor M. I. Pupin of Columbia University had recently finished a lodge, or bungalow, at Tobey Pond, nearby, and had invited about 25 of the cottagers and visitors to a house warming, Mr. Mead being one of the guests. With the exception of a slight cold, Mr. Mead was apparently in his usual good health. He was stricken at the table and died almost instantly.

Mr. Mead was born in Chesterfield, New Hampshire, a small town opposite Brattleboro, Vermont, January 21, 1833, removing to the latter place when six years old. He was educated in Brattleboro, where his father was a successful lawyer and banker. After completing his education he engaged in business in Providence, R. I., and later entered the employ of G. & C. Merriam, Springfield, Mass., publishers of Webster's Dictionary. From Springfield he went into the manufacture of levels and pocket rules in Brattleboro, having bought the business of E. A. Stearns & Co. of that place.

CHARLES L. MEAD.

When the civil war began he sold the business to the Stanley Rule & Level Company, New Britain, Conn., now so well known, the company being a consolidation of A. Stanley & Co. and Hall & Knapp, which was effected in 1854. At about the same time he accepted an appointment on the staff of the adjutant-general of Vermont, which he retained until the end of the war.

At the close of the war the Stanley Rule & Level Company secured his services, one of the inducements held out by the then president of the company being that he could spend two or three hours a day at the factory and employ the balance of the time as best suited him, a condition Mr. Mead often facetiously remarked he had been looking for ever since. Mr. Mead was at once chosen a director and made treasurer of the company, positions since held continuously.

About 1866 he moved the machinery, men and entire business of the Stearns plant, which had been continued in Brattleboro by the Stanley management, to New Britain, remaining there until about 1871, when he went to New York to assume the direction of the business there. In this connection it is worth recording, and Mr. Mead often recalled the fact to his friends, that early in life as the result of some experiences he had decided there were three things he would not do. One was he would not work for a corporation; would not sell goods, nor live in New York, all of which for the best half of his life he had done.

On the death of the former president, Henry Stanley, 15 years ago, Mr. Mead was elected president, the duties of which office he performed until his death, in addition to those of the treasurership.

Mr. Mead represented New Britain in the General Assembly of Connecticut in 1869, was on the Executive Board of the American Missionary Association over 25 years, and long chairman of the committee, a position he resigned last fall, when he was elected vice-president of the association. He was also a trustee of the Hampton Normal and Industrial Institute, Hampton, Va., long a deacon and trustee of the Broadway Tabernacle Church, New York, and a member of the Hardware Club.

It is said of him that he had a rare faculty for making and keeping friends, and a wonderful memory for recalling people he had met. Factory officials who had been associated with him 34 years testify to never having heard him speak an angry or unkind word or lose his temper, at the same time possessing in large measure the qualities of tact, honesty and business acumen which make an ideal Christian merchant and man of affairs. He never obtruded his religious views on any one, and away from business rarely talked shop.

Mr. Mead was well connected, being a cousin of ex-President Hayes. A brother now traveling in Europe is of the firm of McKim, Mead & White, architects, New York, while another brother, Larkin G. Mead, is the American sculptor now of Florence, Italy, who designed the great Lincoln monument in Springfield, Ill. One of his sisters is the wife of William Dean Howells, the novelist and editor.

Services were held at the cottage in Norfolk, the interment being at Brattleboro on Tuesday. The honorary pallbearers were prominent business and social friends of Mr. Mead, among them being Charles B. Stanley and H. S. Walter of the company at New Britain, and Frank H. Thompson, manager of the New York warehouse and connected with the company for 30 years.

During the services in Norfolk, a mass meeting of the Stanley Rule & Level Co. workmen was held in the factory, a testimonial and tribute of the employees to one who was always their friend. The meeting was conducted entirely by the employees, no representative of the management being present. The following resolutions were unanimously passed:

Resolved, That a committee of five be appointed to draft a set of resolutions expressing our sorrow at the death of Charles L. Mead, and the high esteem in which he was held by the employees of the Stanley Rule & Level Company.

Resolved, That they be suitably engrossed and presented to the family of the deceased as a token of our

regard and sympathy with them in the great loss they have sustained.

A Comparison of Prices.

THE following prices on various lines of goods taken at random from their "change book," under date of January, February and March, 1880, by Wells & Nellegar Company, Chicago, will be of interest as showing the difference in present values as compared with 19 years since. Notwithstanding the advances made in the past few months, it will be observed that the prices given are materially higher than present quotations:

Green Wire Cloth, per square foot	$0.04
Batcheller Forks, 2, 3, 4, per dozen	5.40
Agricultural Wrenches, 10-inch, per dozen	6.00
W. & N. Socket Strap Scoop No. 8, per dozen	13.00
Nails, Cut, Iron, per keg	5.85
Barb Wire, Four Point, Galvanized, per pound	.12
Green Chamber Pails, 12-quart, per dozen	8.00
Nicholson Files, discount	20 per cent.
Coil Chain, 3/0, per 100 feet	7.50
Bull Rings, 2¼-inch, Copper, per dozen	3.00
Mineral Knobs, per dozen	1.40
2/0 Snatches, per dozen	3.00
No. 9 Fence Wire per pound	.06½
Railroad Barrows, per dozen	20.00
Farmer's Drawing Knife, 8-inch, per dozen	7.00
Wadsworth Bush Hooks, per dozen	10.50
26 Common Iron (Steel not made), per pound	6.20
Fence Staples, per keg	7.50
Box Coffee Mills, No. 25, per dozen	10.50
Forrest Clipper Axes, per dozen	9.50
Novelty Wringers, per dozen	63 00
Cast Reversible Butts, discount	25 and 10 per cent.
Disston's Corn Knives, per dozen	4.50
Shot, per bag	2.00
Narrow Wrought Butts, discount	25 per cent.
Short Cutter Mattocks, per dozen	14.50
3/0 Halter Chains, per dozen	6.75
Bed Casters, discount	15 per cent.
Hooks, Hasps and Staples, discount	40 per cent.
267 Cupboard Catches, per gross	12.00
Torrey Door Springs, per dozen	3.00
Dripping Pans, per pound	.12
Common Sad Irons, per pound	.01½
9-inch Tin Pie Plate, per gross	7.20
1-quart Retinned Pressed Dipper, per dozen	1.75

Geo. H. Bishop & Co.

GEORGE H. BISHOP & CO., Cincinnati, Ohio, and 100-102 Reade street, New York, issue an illustrated catalogue and price-list of Saws, &c. Included are Ice, Cross Cut, Scroll, Hand, Pruning and Butcher Saws, Trowels, Cabinet Scrapers, Wood Saws, &c. The company make a specialty of Hand Saws for manual training schools. Among new goods are shown hand made Hand Saws, Cabinet Scrapers, &c. This catalogue cancels former prices, owing to advances in material, findings and labor.

Price-Lists, Circulars, &c.

C. SIDNEY SHEPARD & CO., Chicago and Buffalo: Fall catalogue of Coal Hods, Stove Boards, Stove Pipe, Elbows and other seasonable goods.

THE STOLLBERG & CLAPP COMPANY, Toledo, Ohio: Fall circular showing Axes, Saws, Corn Huskers, Coal Hods, Heaters, Stove Boards, Cutlery, Plated Ware, &c.

THE PATTERSON TOOL & SUPPLY COMPANY, Dayton, Ohio: Challenge Power Hack Saw.

BUTTS & ORDWAY COMPANY, Boston, Mass.: Catalogue showing B. & O. Triple Punch, Tire Upsetter, Horseshoers' Foot Vises, Horseshoe Pads, Larrabee Roller Chafe Iron, &c.

Trade Items.

THOMSON BROS. & CO., Lowell, Mass., have succeeded Thomson, Cheney & Thomson as manufacturers of Seavey's Patent Miter Box and Saw Guide. This tool, which was recently placed on the market, is, we are advised, being well taken by the Hardware trade.

JOSEPH HUSE & SON, Boston, Mass., are sending out to their customers an imitation leather sample case, which may be used for the care of cards, &c., but which in this instance is employed to carry samples of the firm's North Carolina and Vermont Mica. A card giving standard price-list of selected Mica, 1899, is also inclosed.

B. E. HAMILTON, 151 Lake street, Chicago, has been appointed sales agent for the following companies: Merchant's Wire & Nail Company, Kanawha City, W. Va., manufacturing a full line of Wire Nails, Galvanized and Annealed Wire, and Nail Wire; Columbia Mfg. Company, Niles, Ohio, Iron and Steel Roofing; Belfont Iron Works Company, Ironton, Ohio, Cut Nails; Upson Nut Company, Cleveland, Ohio, Bolts and Nuts.

CHARLES F. SMALL, for a number of years identified with the fire arms manufacturing business in New England, is now connected with Colt's Patent Fire Arms Mfg. Company, Hartford, Conn., in charge of their sales department.

T. HENRY ASBURY of the Enterprise Mfg. Company of Philadelphia arrived in New York last Friday by the Hamburg line via Southampton. Mr. Asbury, accompanied by his wife and daughter, spent several enjoyable weeks in Great Britain and on the Continent, and returns to his home in excellent health and spirits.

EDWARD DARBY of Edward Darby & Sons, Philadelphia, and his daughter, have returned from a European trip. Mr. Darby came to this country more than 50 years ago, having previously learned the business of Wire working in Birmingham, England. He says the methods of manufacture on the other side are very little changed from what they were in his boyhood days, and few, if any, of the improved appliances used in this country are met with. Mr. Darby is now on a visit to Canada as a delegate to the St. George's Society, which is holding a session at Hamilton, Ont. Mr. Darby is well on toward his seventy-ninth birthday, although his looks and his voice, which is remarkable, would indicate not over 60.

VALLEY FORGE CUTLERY COMPANY, Newark, N. J., for whom Hermann Boker & Co., 101-103 Duane street, New York, are distributing agents, will be in a position to put a complete line of American Pocket Knives made by this company on the market in September. Hermann Boker & Co., will be recognized by the trade as large importers of German Cutlery of all kinds for many years, which business they will still continue in addition to the American line referred to.

IN the Special Notice in this issue signed "Oregon" a call is made for an Agricultural Implement and Vehicle salesman of ability and experience. The advertisers are a well-known Western house.

UNDER date of the 24th inst., Iver Johnson's Arms & Cycle Works, Fitchburg, Mass., will send out to their agents an announcement of their programme for 1900. They state that they have not entered the Bicycle consolidation and do not intend doing so, desiring to remain perfectly independent and free to act according to their own business judgment. Their line and list prices for the coming season are as follows: Medium grade roadster, $25; high grade roadster, $35; with coaster brake, $40; with cushion frame, $50; chainless, $60, making what is referred to as a complete line of attractive sellers. They say that they have arranged to double their output for next year and are now ready to renew contracts with satisfactory 1899 agents.

Among the Hardware Trade.

C. L. Blake and Wm. Warner have purchased the Hardware business of W. B. Glynn at Saxton's River, Vt., and will continue under the style of Warner & Blake. The new firm have put in glass front counters and oak shelving throughout the store.

Beck & Benshansen have bought the business formerly conducted by J. C. Hays in Ord, Neb.

M. R. C. Smith is the proprietor of a new Hardware, Stove and Sporting Goods store at Missoula, Mont.

John J. Jenkins, Edwardsville, Pa., is enlarging his store so as to be in better position to meet the demands of his growing trade.

Marshville Hardware Company have been organized at Marshville, N. C.

Sheldon & Cook are successors to W. W. Bott at Narka, Kan. The store is under the management of W. C. Kuchera.

Lazelle Bros., Caro, Mich., will about October 1 move to a new store fitted throughout with new and improved fixtures. The store will have 7200 square feet of floor space. They refer to business as the best in seven years.

Else & Brown, Long Beach, Cal., have recently opened a retail store for the sale of Hardware, Farm Implements, Stoves, Sporting Goods, Groceries, &c. The establishment is of brick and 26 x 70 feet in dimensions.

F. B. Phillips & Co. have succeeded D. B. Martin & Co. at Bay City, Mich.

H. F. Bashford has sold out his stock of Hardware at Vermillion, Kan., to R. E. Mayhew.

F. L. Thiel, Langford, N. Y., whose store was burned out a short time since, is rebuilding and expects to be settled in new quarters in about 60 days.

The store of Grant Ingalls was destroyed during the recent conflagration in Cuba, N. Y. Mr. Ingalls' loss above insurance was between $200 and $300.

Jno. Choat & Son are successors to John Choat at Guthrie, Ky.

Sampson & Sampson, who have succeeded Sampson & Kadel in Delta, Iowa, have commenced the erection of a new store.

P. C. Carstensen of Elsie, Neb., will remove his stock of Hardware and Harness to Curtis about the 25th inst.

Waibel & Donaldson have dissolved partnership in the Hardware business at Huron, S. Dak. Wm. Waibel is continuing at the old stand.

G. W. Priest has succeeded J. L. & E. L. Thompson, Jackson, Minn.

B. F. Temple is successor to Temple Bros. at English, Ind. Mr. Temple has just moved into a new brick building, 28 x 80 feet, two stories high. The establishment is fitted up with the latest improvements.

Johnson, Gills & Bro., who recently purchased the Hardware business of Rich McGee, Bedford City, Va., have since disposed of it to Parker, Ayres & Co.

Frank J. Feger, Enid, Okla., will continue the business of Tunneson & Feger, who have dissolved partnership.

J. T. Robertson & Bro., Union Springs, Ala., have sold their business to J. L. Purdy.

Ratton & McKenny have succeeded W. A. Edwards at Newark, Ark.

The copartnership existing between W. H. Goodfellow, J. A. B. Melvin and Frank H. Goodfellow under the style of the Goodfellow-Melvin Company, Altoona, Pa., has been dissolved by mutual consent, Mr. Melvin retiring. The business will be continued by the remaining partners under the style of W. H. Goodfellow & Son.

The Stollberg-Clapp Company's store in Toledo, Ohio, was robbed of $200 worth of Cutlery, Revolvers, &c., a short time since.

C. W. Carter, formerly traveling salesman for Odell Hardware Company and late with W. S. Donnan & Co., has taken an interest in the firm of Long & Woody, Roxboro, N. C., and will manage the business and do the buying.

The firm of Spradling & Brier, Hoopeston, Ill., have dissolved and A. L. Spradling is successor at the old stand.

Chas. F. Steiner of the Cooney-Steiner Company, Indianapolis, Ind., has sold his interest in the business to Mr. Cooney.

Mayberry Hardware Company, Birmingham, Ala., have been incorporated with a capital stock of $75,000. The new company will continue the business of the Mayberry-Watson Company. H. H. Mayberry is president of the concern, T. J. Watson secretary and J. W. Hordesty treasurer.

The new building which the Swank Hardware Company, Johnstown, Pa., are erecting to meet the demands of their largely increased business will be five stories high and will have 40,000 square feet of floor space, nearly all of which they will occupy. The company conduct both a wholesale and retail trade, and when the new building is completed will employ about 30 persons in looking after the needs of their customers. The line carried by the firm includes Hardware, Stoves, Mill Supplies, Gas and Steam Fitting Goods, &c. The business was founded in 1862.

Turner Brothers, Foxboro, Mass., who had not room enough in their old store, have taken possession of new premises, 20 feet wide and 70 feet in depth, in the rear of which is a warehouse, 30 feet square. They have added Sporting Goods to their line of Shelf Hardware, Stoves, Tinware and Farm Implements.

Norton & Denton have purchased the business of S. W. Johnston at Macedonia, Iowa.

Dodd & Rogers, wholesale and retail, Charlottetown, P. E., I., in view of their increasing business have made material additions to their establishment, and are now handling Mill Supplies and Railway and Steamboat Goods in addition to their former line of Hardware, Stoves, Agricultural Implements and Saddlery Hardware.

J. E. Armstrong & Son have succeeded Kittelsen Bros. in the Hardware and Lumber business at Grand Falls, Tex. They are building a new warehouse.

Wallace Bros. are successors to Miller Bros. at Port Austin, Mich.

R. D. Dillson Hardware Company of Port Angeles, Wash., have recently moved into handsome new quarters.

F. W. Hilton, whose store at Leland, Idaho, was recently destroyed by fire, has resumed business.

J. J. Seely has purchased the Hardware business of Geo. F. Beverly, St. John, N. B.

A. R. Clay & Co. have succeeded McCauley & Clay in the Hardware, Tinware, Sporting Goods, Glassware and Harness business at Moody, Tex. After remodeling the store and putting in new fixtures they will add a line of Farm Implements and Vehicles.

Miscellaneous Notes.

H. B. Split Pipe Collar and Ceiling Plate.

Houghton & Buxton Mfg. Company, Worcester, Mass., who make sheet metal stampings of every description to order, are marketing the H. B. split pipe collar and ceiling plate. The plate is referred to as a radical departure from all previous methods of construction and is secured to the ceiling by spring arms. It is independent of the floor or steam pipe, thus avoiding shrinkage of floor and the expansion and contraction of steam pipes. It is easily and quickly put on after all other mechanics are through, insuring a perfectly clean piece of work. These plates, we are advised, have been well introduced and are being largely used by the trade.

Hard Coiled Spring Galvanized Wire for Fencing Purposes.

The Frost Wire Fence Company, Cleveland, Ohio, who produce and use hard coiled spring galvanized wire for manufacturing the Frost fence, have concluded to offer the coiled spring product to the general trade. The wire will be put in rolls of about the same size as plain wire, enabling dealers to furnish it to fence agents as well as farmers. The point is made that coiled wire fully provides for expansion and contraction, and that there has been a growing demand for the product independent of woven wire fence in rolls.

Automatic Coaster and Brake.

New Departure Bell Company, Bristol, Conn., are now sending out the New Departure Coasting Hub and Brake, illustrated in these columns a few months ago, laced in a rim, in addition to the regular form, so that, when set in a bicycle and tire shifted from the original rim, it is ready for service without requiring any more skill than is needed to take out one wheel and put in another. In this device the rear hub which has its own sprocket, contains both coasting mechanism and brake. Rims can be furnished to match front rim, whether natural finish or enameled in black or colors. If a rider chooses to buy an extra tire he can utilize the original hub and spokes and rim for a reserve to be used pending repairs in the event of injury to the rear wheel. In ordering care should be taken to name the number of teeth in rear sprocket and width of chain. John H. Graham & Co., 113 Chambers street, New York, are sole selling agents for this device, which can thus be fitted to almost any make of chain wheel by the rider. In action, the coaster is used by ceasing to pedal, keeping the feet on the pedals, which, smoothly thrown out of gear, do not move, the brake being set by a slight back pressure, while the rider can pedal forward without shock at any moment, and always control his mount.

Automobile Bell.

New Departure Bell Company, Bristol, Conn., for whom John H. Graham & Co., 113 Chambers street, New York, are selling agents, have just brought out the New Departure automobile bell, here illustrated. Fig. 1 shows the bell and the method of attachment to the floor of the carriage so that the plunger can be conveniently pressed by the driver. The casing is cast solid in one piece and reinforced for added strength and rigidity, the operating mechanism being simple in arrangement and compactly assembled. To prevent any possible loosening the gong is firmly locked in place by a set screw which forms a positive check against rotation in either direction. The device is finely finished, the 3½-inch gong plunger and floor plate are full nickeled, and frame and casing are black enameled. Fig. 2 is a sectional view about half size showing the interior mechanism. This bell for motor vehicles is offered as an alarm bell, penetrating and forceful, yet of a musical tone and not irritating or objectionable.

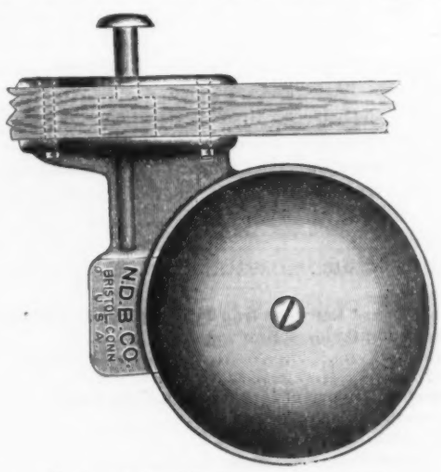


Fig. 1.—Automobile Bell for Motor Vehicles.

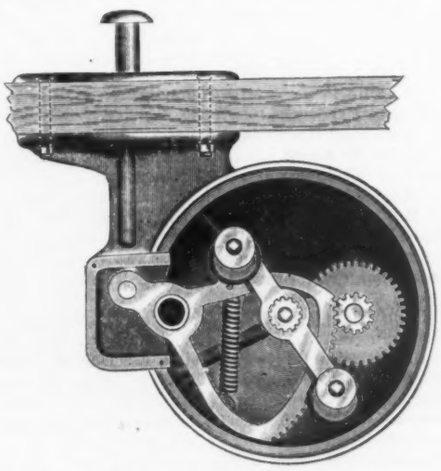
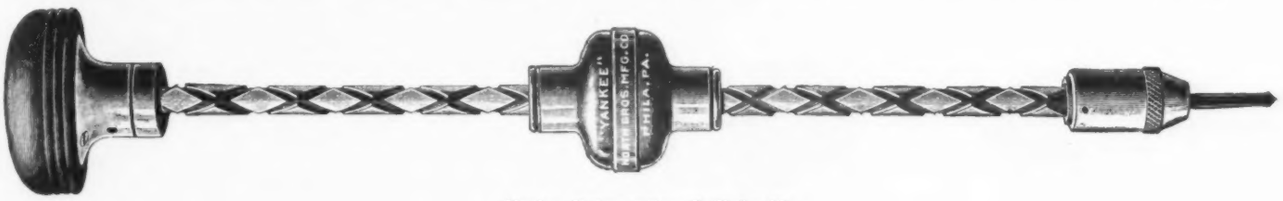


Fig. 2.—Sectional View, Showing Interior Mechanism.

Yankee Reciprocating Drill No. 50

The cut shown herewith represents a reciprocating drill put on the market by North Bros. Mfg. Company, Philadelphia, Pa. The drill is designed for use in drilling in steel, iron, brass and other metals, as well as in all varieties of woods. It is so constructed that the drill runs continuously to the right, during both the forward and backward movement of the driver; thus drills continuously. The pressure to feed the drill is had by pressure against the head of the tool, which is provided with ball bearings to reduce the friction. The chuck is referred to as being of new design, with three jaws, and as accurate and strong. No drill points are furnished with the tool, the operator providing the quality, style and size best suited for the material to be drilled. The chuck will hold any drill with shanks 3-16 inch diameter or less. The movement or traverse of the driver is 8½ inches. The entire length of the tool without drill is 16 inches. The materials and workmanship throughout are spoken of as the best, and each tool is guaranteed by the makers.



Yankee Reciprocating Drill No. 50.

The Kruse Kross Klevis.

The accompanying cuts relate to an adjustable plow clevis offered by the Kruse Kross Klevis Company, Higginsville, Mo. The clevis is referred to as being made of the best quality of malleable iron, and as adjustable to fit any plow from an 8 to an 18 inch. The point is made that parties handling this clevis need keep no other kind in stock, as it can be used to repair broken parts of other clevises.

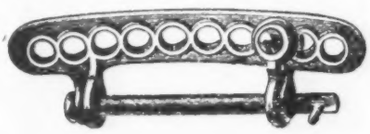


Fig. 1.—The Kruse Kross Klevis.

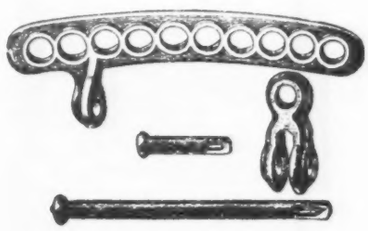


Fig. 2—Parts of Kruse Kross Klevis.

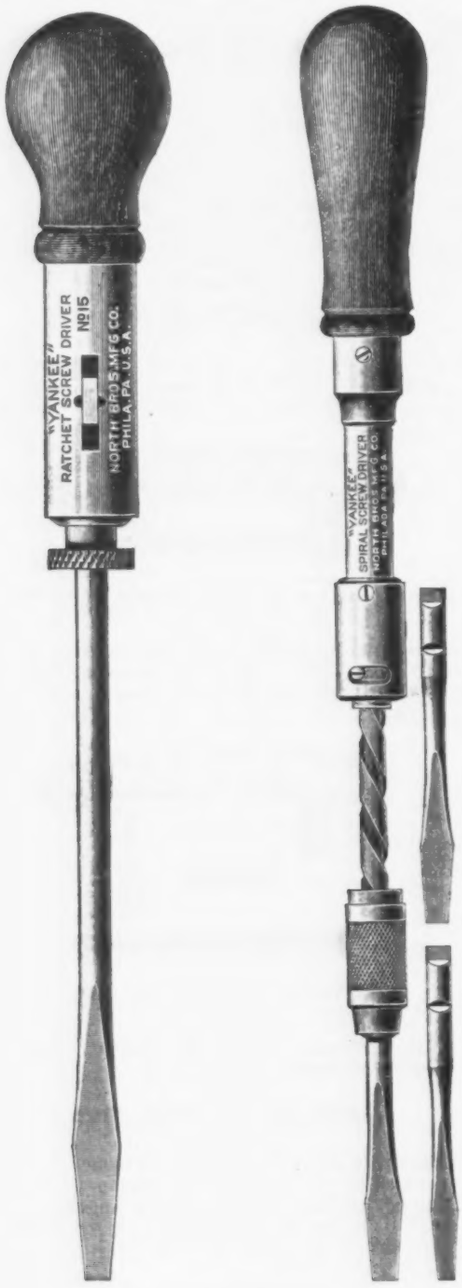
Metal Choker Mouse Trap.

We illustrate herewith the Metal Choker mouse trap, manufactured by the Animal Trap Company, Abingdon, Ill. The body of the trap is similar in appearance to the five-hole tin choker that has been on the market for years, but the setting and catching device differs very materially. A small coil spring lever is fastened to the inside of the trap, as well as the bait hook. To set the trap it is only necessary to raise the lever to the top of the trap, catching it over a small projecting piece of tin, and when the mouse attempts to secure the bait, held by the bait hook, the lever is released, striking the mouse over the back of the neck, holding him secure.

Metal Choker Mouse Trap.

Yankee Ratchet Screw Drivers.

North Bros. Mfg. Company, Philadelphia, Pa., are bringing out the screw drivers shown by the accompanying cuts. The No. 15 ratchet screw driver is a modification of the company's No. 10 Yankee ratchet driver, and is made to meet a demand for a light blade screw driver for small screws in electric work, &c. By means of the knurled washer the blade can be turned with the finger and thumb. This permits the hand holding the handle to press steadily against the screw and



No. 15. No. 20.

Yankee Ratchet Screw Drivers.

prevent the screw wabbling, while the thumb and finger can turn or ratchet the blade until the screw is well started in its place, when it is driven home by the hand on the handle. When taking out a screw, it is started by turning the blade by the handle until loose, and then run out by the thumb and finger operating the knurled washer. In this way, it is shown, the work is accomplished much more easily and rapidly. To ratchet, the slide is pushed up or down the handle, and placed midway in the slot, to give a fixed blade. The driver is made in sizes 2, 3, 4 and 5 inches, all with 7-32-inch diameter blade of the different lengths, but with one size handle. They are packed half dozen in a strong paper box. The materials and workmanship are referred to as of superior quality in every detail, and every tool is guaranteed by the makers.

The No. 20 screw driver is a spiral ratchet tool, a modification of the company's No. 30, and is designed to push or ratchet screws into place, but not to take them out in that way. It is arranged to be used as a rigid driver by moving the shifter to the opposite end of the slot. The construction of the ratchet and pawl permits, it is explained, of a compact arrangement, making a tool convenient in size and of light weight, yet strong in vital parts. The manufacturers state that neither pawl nor ratchet can bend, break or get out of order; that the friction in the ratchet mechanism is so slight as to be hardly felt, and the backward movement quite noiseless.

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Current Hardware Prices.

REVISED AUGUST 22, 1899.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, and are in many cases their regular prices to the small trade, lower prices being frequently quoted to the fair retail trade, both by the manufacturers and the jobbers.

Cut Prices.—*In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.*

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—
Domestic, ₱ doz. $3.00....33⅓&33⅓&10%
North's.....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—
Ives' Patent.....25&5%
Taplin's Perfection.....50%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—
Eagle Anvils.....₱ ℔ 7¼@7¾¢
Hay-Budden, Wrought.....8¼@8¾¢
Horseshoe brand, Wrought.....9¼@9¾¢
Samson.....₱ ℔ 7¼@8¢
Trenton, Wrought.....₱ ℔ 8¼@8¾¢

Imported—
Armitage's Mouse Hole.....8¾@9¼¢
Peter Wright's.....9¼@9¾¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00.....20%

Apple Parers—See *Parers, Apple, &c.*

Augers and Bits—
Common Double Spur..70¢10@75¢5%
Boring Machine Augers.....70¢10@75¢5%
Car Bits, 12-in. twist.....60¢10¢10@70%
Jennings' Pattern:
Auger Bits.....60¢10¢10@70%
Ford's Auger and Car Bits.....40&10@40&10&10%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list.....40@40&10%
No. 30. R. Jennings' List..50&10@60%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits15&10@15&10&5%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....70%
Snell's Bell Hangers' Bits.....5%
Snell's Car Bits.....60&10&5&5%
Wright's Jennings Bits (R. Jennings' list).....50%

Bit Stock Drills—
Standard List .....60¢10¢10@70¢5%

Expansive Bits—
Clark's small, $18; large, $26.....50&10%
Lavigne's Clark's Pattern, No. 1, ₱ doz., $26; No. 2, $18.....50&10%
Steer's No. 1, $26; No. 2, $18...40@40&5%
Swan's.....40@40&10%

Gimlet Bits—
Common Double Cut..gro. $2.75@3.25
German Pattern.....gro. $5.00@5.50
Double Cut, makers' lists.....50¢5@50&10%

Hollow Augers—
Bonney's Adjustable, ₱ doz.....$18.00
Douglass'.....33⅓&33⅓&10%
Stearns', Common, No. 6.....10%
Stearns', Nos. 1 and 2.....20%

Ship Augers and Bits—
Ford's.....40&10@40&10&10%
Snell's.....40@40&10%
L'Hommedieu's.....15&10@15&10&10%
Watrous'.....40@40&10%

Awl Hafts, See *Hafts, Awl.*

Awls—
Brad Awls:
Handled .....gro. $2.75@3.10
Unhandled, Shouldered gro.65@66c
Unhandled, Patent.....gro. 66@70c
Peg Awls:
Unhandled, Patent....gro. $1@3¼c
Unhandled, Shouldered.gro.65@70c
Scratch Awls:
Handled, Common..gro. $3.00@3.75
Handled, Socket..gro. $11.00@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
First Quality, best brands.$5.25@5.50
First Quality, other brands$4.50@4.75
Jobbers' Special Brands:
Good Quality.....$4.25@4.50
Best Quality.....$5.00@5.25
Cheap Handled Axes.....$4.50@4.75
Good Handled Axes.....$5 00@5.25
Beveled, add 25c doz.

Axle Grease—See *Grease, Axle.*

Axles—

	Iron.	Steel.	
Concord, loose collar...5¼c	5	c	5% cash
Concord, solid collar...5¾c	6¼c		
No. 1 Common.....4	c	8¾c	
No. 1¼ Com. New Style..4½c	4½c		
No. 2, Solid Collar.....4¾c	4¾c		
Nos. 7, 8, 11 to 14.....60&5%			
Nos. 7, 8, 11 to 14, 100 sets..extra 10%			
Nos. 15 to 18.....50%			
Nos. 19 to 22 .....70%			

Balances—

Sash—
Caldwell low list 30%
Pullman's 6⅔%
Vanderbilt 30%

Spring—
Spring Balances .....50@50&5%
Chatillon's Light Spg. Balances...40&10%
Chatillon Straight Balances 40%
Chatillon Circular Balances 50%
Chatillon's Large Dials 30%

Barb Wire—See *Wire, Barb.*

Bars—Crow—
Steel Crowbars, 10 to 40 lb., per lb.... 3@3½c

Beams, Scale—
Scale Beams, List Jan. 12, '82.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters—Egg—
(Standard Co.), Dover No. 10, ₱ gro. $6.75; No. 5, $5.75; No. 15, $14.00
(Taplin Mfg. Co.) Dover No. 50, ₱ grs. $5.25; No. 100, $4.25; No. 102, $4.00; No. 150, ₱ doz. $1.50; No. 152 $2.00.
Lyon's Standard Egg Beater.....₱ doz. $1.75
Wonder (S. S. & Co.) .....₱ doz. 75¢

Bellows—

Blacksmith—
Standard List.....70@70&5%

Inch..	*20*	*22*	*24*	*26*	*28*	*30*	Net Prices.
Each..	*$4.25*	*4.50*	*5 25*	*5.75*	*6.50*	*7.75*	
Extra Length:							
Each..	*$4.75*	*5.25*	*5.75*	*6.50*	*7.50*	*8.75*	

Molders—

Inch..	*9*	*10*	*11*	*12*	*14*	*16*	Net Prices.
Doz...	*$6.75*	*7.25*	*8.50*	*9.50*	*12.00*	*14.50*	

Hand—

Inch...	*6*	*7*	*8*	*9*	*10*	*12*	Net Prices.
Doz....	*$3.75*	*4.25*	*4.50*	*5.00*	*5.75*	*6.75*	

Bells—Cow—
Ordinary goods.....75¢10%
High grade.....70@70¢10%
Jersey.....75@75&10%
Texas Star.....50&10%

Door—
Gong, Yankee.....55%
Home, R. & E. Mfg. Co.'s .....50&10%
Lever and Pull, Sargent's.....45&10@45&10&5%

Hand—
Hand Bells, Polished.....65&10@70%
White Metal.....65&10@70%
Nickel Plated.....50&5@50&10¢5%
Swiss .....65@65&10%

Miscellaneous—
Farm Bells ..... lb. 2@2½c
Steel Alloy Church and School.....50&10@60%

Belting

Rubber—
Common Standard.....70&10@75%
Standard.....60¢10@70%
Extra.....60@60&10%
High Grade.....60@60&10%

Leather—
Extra Heavy, Short Lap .....50&10%
Regular Short Lap .....60@60&5%
Standard .....60&10@60&10¢5%
Light Standard.....70&10%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—
Bretteli Tire Upsetter, $15.....50%
Green River Tire Benders and Upsetters.....20%
Stoddard's Lightning Tire Upsetters.....40@50%

Bicycle Goods—
Lane's Cycle Hanger.....33⅓&5%
John S. Long's Son's 1899 list:
Chain.....50%
Parts.....50%
Spokes.....50%
Tubes.....60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks—Tackle—
Common Wooden...75&10@75&10&10&5%
Eddy's Steel.....60&10@70%
Hartz Steel.....50&10@60%
Ford's Star Brand, Self Lubricating..70%
Hollow Steel, Ford's Pat. Star Brand... 50&10%
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron.....50&10%
See also *Machines, Hoisting.*

Boards, Stove—
1899 List:
Zinc.....80%
Others.....40%

Bolts—

Carriage, Machine, &c.—
Common, list Jan. 30, '95..50¢10@60&..%
Norway Iron, $3.00, list Oct. 7, '84.. 75¢10@75¢10¢5%
Phila. Eagle, $3.00 list.....80@30¢10%
Bolt Ends, list Jan. 30, '95..... 60@60¢10¢....%
Machine, list June 12, '96..... 60@60¢10&... %
NOTE.—*Jobbers' prices on Bolts are now generally lower than manufacturers'.*

Door and Shutter—
Cast Iron Barrel, Round Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz...	*$0.27*	*.30*	*.38*	*.48*	*.66*

Cast Iron Bottom, Japanned:

Inch	*6*	*8*	*10*
Per doz.....	*$0.83*	*1.05*	*1.65*

Cast Iron Chain, Flat, Japanned:

Inch.	*6*	*8*	*10*
Per doz	*$1.10*	*1.32*	*1.87*

Cast Iron Shutter, Brass Knobs:

Inch.....	*6*	*8*	*10*
Per doz	*$0.49*	*.77*	*.88*

Wrought Barrel Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz .	*$0.44*	*.50*	*.61*	*.70*	*1.28*

Wrought Barrel ...75&5@75¢10¢5%
Wrought Barrel, Bronzed..60@60¢5%
Wrought Flush, B. K.....50¢20@70%
Wrought Shutter.... ..60@60¢10¢5%
Wrought Square Neck.....70@70¢10%
Wrought Sunk.....60@60¢10%
Ives' Patent Door.....62½&62½&10%

Stove and Plow—
Plow .....70@70¢10%
Stove, list August 27, 1898.....65%
Note.—See Trade Report.

Tire—
Common, list Feb. 28, '83..65@65¢....%
American Screw Company:
Norway Phila., list Oct. 16, '84.....70%
Eagle Phila., list Oct. 16, '84.....75%
Bay State, list Feb. 28, '83.....65%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84.....70%
Eagle Phila., list Oct. 16, '84.....75%
Eclipse, list Feb. 28, '83.....65%
Port Chester Bolt & Nut Company
Empire, list Feb. 28, '83.....63%
Keystone Phila., list Oct. '84.....75%
Norway Phila., list Oct. '84.....70%

Borers, Tap—
Borers Tap, Ring, with Handle:

Inch.....	*1¼*	*1½*	*1¾*	*2*
Per doz..	*$3.50*	*4.50*	*5.00*	*6 50*
Inch		*2¼*		*2½*
Per Doz.....		*$7 50*		*10.25*

Enterprise Mfg. Co.....25@30%
No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.

Boring Machines—*See Machines, Boring.*

Boxes, Mitre—
Seavey's, each $4.00.....50&10%

Braces—
NOTE.—*Most Braces are sold at net prices.*
Common Ball, American..$1.10@1.20
Barber's.....60@60&10%
Fray's Genuine Spofford's.....50&10&5%
Fray's No. 70 to 120, 81 to 123, 207 to 414.....50&10&5%
P., S. & W. Co., Peck's Patent.....60&10&5@60&10&10%

Brackets—
Cast Iron, plain..... 75@75¢10%
Wrought Steel ..... 70¢10@75%
Bradley's Wire Shelf..... 75&10@80%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—
Wire Goods Co.....75@75&10%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—
Hoosier.....₱ gro. $22.00@$24.00

Bull Rings—See *Rings, Bull.*

Butts—Brass—
Wrought list Sept., '96.....25@33⅓&
Cast Brass, Tiebout's.....50%

Cast Iron—
Fast Joint, Broad..... 50@50¢10%
Fast Joint, Narrow..... 50@50&10%
Loose Joint.....70¢5@70¢10%
Loose Pin.....70¢5@70¢10%
Mayer's Hinges.....70¢5@70¢10%
Parliament Butts.....70¢5@70¢10%

Wrought Steel—
Loose Joint..... Table and Back Flaps.. Narrow and Broad..... Inside Blind..... Loose Pin..... 75@75¢5%
Loose Pin, Ball and Steeple Tip.... 80@80&5%
Bronzed Wrought Narrow and Inside Blind Butts.....50&10@50&10&5%

Cages, Bird—
Hendryx, Brass:
3000, 5000, 1100 series.....10%
1200 series.....40%
200, 300, 600 and 900 series.40&10&50%
Hendryx Bronze:
700, 800 series.....40&10@50%
Hendryx Enameled.....40&10@50%

Calipers—See *Compasses.*

Calks, Toe—
Burke's, One Prong, Blunt.....5¢ } 10&5
Burke's, One Prong, Sharp.....6¢ } @10
Burke's, Two Prong, Blunt.....6¢ } &5&
Burke's Two Prong, Sharp....7¢ } 5%

Can Openers—See *Openers, Can*

Cans, Milk—

Buffalo Pattern:	5	8	10 gal.	
		$3.60	$4.00	.40%
Illinois Pattern...	$2 00	3.10	3.50	.40%
Iowa Pattern.....	2.25	3.35	3.75	.40%
	20	30	40	qts.
New York Patt'rn	2.25	2.50	2.65	
Baltimore Patt'rn	2.35	2.50	2.75	

Cans, Oil—
Galvanized Blue Band, 1-gal., ₱ doz. $1.60@$1.80
S. S. & Co., Galvanized Family with faucet, 3-gal., ₱ gro. $54, 5-gal., $60; 10-gal., $180.00
Glass Oil.....₱ doz. $1.90@$2.20

Caps—Percussion—
Eley's E. B.....50c
G. D.....per M $2@3¼c
F. L.....per M $7@40c
G. E.....per M $7@50c
Musket.....per M $7@60c

Primers—

Berdan Primers, $1 00 ..... 5%
B. L. Caps (Sturtevant Shells) $1.00 ..... 5%
All other primers.....*$1.10@$1.12*

Carpet Stretchers—

See *Stretchers, Carpet.*

Cartridges—

B. B. Caps, Con., Ball Swgd. *$1.90*
B. B Caps, Round Ball... *$1.12@1.18*
Blank Cartridges:
32 C. F., $5 50..... .....10d5%
38 C. F., $7 00..... .....10d5%
22 cal. Rim, $1 50..... .....10d5%
32 cal. Rim, $2.75..... .....10&5%
Central Fire 25%
Pistol and Rifle..... .....15d5%
Primed Shells and Bullets.....15d5%
Rim Fire Sporting 50%
Rim Fire, Military..... .....15&5%

Casters—

Bed.....90&10%
Plate.....60&10%
Plate, part Brass ....50&10%
Philadelphia..... .....60&10%
Martin's Patent (Phœnix) ....60@60&5%
Payson's Anti-friction Furniture.....
70&10&5%
Payson's Anti-Friction Truck.60&10&5%
Standard Ball Bearing.....45%
Tucker's Patent, low list.....50@50&5%

Cattle Leaders—

See *Leaders, Cattle.*

Chain—

American Coil, Cask Lots:

3-16	¼	5-16	⅜	7-16	½	9-16
8.00	6.25	5.25	4.50	4.35	4.25	4.15
⅝	¾	⅞	1 inch.			
4.05	4.00	3.90	3.90 cents per lb.			

Less than Cask lots add ¼c. per lb.
German Coil, list July 24, '97 .....
60&10@60&10&10%
German Halter Chain, list July 24, '97.....60&10@60&10&10%
Trace, Wagon and Fancy Chains, list April, '98.....60@—%
Jack Chain, list July 10, '93:
Iron.....50&10@60%
Brass .....50&10@60%
Gal. Pump Chain.....*lb. 4¼@4¾c*
Breast, Hitching and Rein Chains
Covert Sad. Works..... 70%
Covert Mfg. Co.:
Breast.....40&2%
Halter.....40&2%
Heel.....40&2%
Rein.....40&2%
Stallion.....40&2%
Oneida Community:
Niagara and Eureka Weldless Coil and Halters.....65@65&10%
Niagara and Eureka Weldless Cow Ties.....55&5@60%
American Coil and Halters..55&5@60%
American Cow Ties..... 50@50&10%

Chalk—(From Jobbers.)

Carpenters', Blue.....*gro. 50@52c*
Carpenters', Red .....*gro. 45@47c*
Carpenters', White.....*gro. 40@42c*
See also Crayons.

Chalk Lines—See *Lines.*

Checks, Door—

Bardsley's.....40%
Columbia.....60&10%
Eclipse.....60@60&10%

Chisels—

Socket Framing and Firmer

Standard List.....*75&5@75&10%*
Buck Bros.....30%
Charles Buck.....30%
Swan's.....75@75&5&2½%
L. & I. J. White.....30@30&5%

Tanged—

Tanged Firmers.....*40&10@50%*
Buck Bros.....30%
Charles Buck.....30%
L. & I. J. White, Tanged.....25&5%

Cold—

Cold Chisels, good quality.lb. 14@16c
Cold Chisels, fair quality.....*lb. 12c*
Cold Chisels, ordinary.....*lb. 7@7½c*

Chucks—

Beach Pat., each $8.00.....20%
Skinner Patent Chucks:
Combination Lathe Chucks.....40%
Drill Chucks.....30%
Independent Lathe Chucks.....40%
Improved Planer Chucks.....20%
Universal Lathe Chucks.....40%
Face Plate Jaws.....35%
Union Mfg. Co.:
Combination.....40%
Czar Drill 30%
Geared Scroll.....33⅓%
Independent.....40%
Union Drill.....30%
Universal.....40%
Face Plate Jaws.....35%

Clamps—

Adjustable, Hammers'.....20@20&5%
Adjustable, Stearns'.....30%
Cabinet, Sargent's .....45&10@50&10%
Carriage Makers', P., S. & W. Co..40&10%
Carriage Makers', Sargent's.....
50&10@50&10&5%
Besly, Parallel.....33⅓&10%
Saw Clamps, see *Vises, Saw Filers'.*
Stearns Malleable, with Wrought Iron Screw.....75%
Stearns Steel.....33⅓%

Cleaners, Walk—

Star Socket, All Steel.....₱ doz. $4.00 net
Star Shank, All Steel....₱ doz. $3.75 net

Cleavers, Butchers'—

Foster Bros.....30%
New Haven Edge Tool Co.'s.....40%
Nichols Bros., Flat hdl., 30%; Rd. hdl., 40%
Fayette R. Plumb.....25%
P., S. & W .....33⅓&5@33⅓&10%
L. & I. J. White.....25%

Clippers—

Chicago Flexible Shaft Company:
Handy Toilet.....₱ doz. $7.20
Mascotte Toilet .....₱ doz. $8.40
Monitor Toilet.....₱ doz. $9.00
Stewart's Patent.....₱ doz. $10.00

Clips, Axle—

Eagle and Superior ¼ and 5-16 inch.....*70d10@75%*
Norway, ¼ and 5-16 inch...*70@70d5%*

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.). .....
70@70d5%

Coffee Mills—See *Mills, Coffee.*

Collars, Dog—

Brass, Pope & Stevens' list.....40%
Embossed, Gilt, Pope & Stevens' list30&10%
Leather, Pope & Stevens' list..... 40%

Compasses, Dividers, &c.

Ordinary Goods .....*70d10@75%*
Bemis & Call Hdw. & Tool Co.:
Dividers.....65%
Calipers, Call's Patent Inside.....55%
Calipers, Double.....70%
Calipers, Inside or Outside.....70%
Calipers, Wing.....60%
Compasses.....50&5%
J. Stevens A. & T. Co.....25&10%

Coolers, Water—

S. S. & Co.: 2-gal., $15.40; 3-gal., $17.60; 4-gal., $19.85; 6-gal., $25.50.

Coopers' Tools—

See *Tools, Coopers'.*

Cord— Sash—

Braided, Drab..... *lb. 21@23c*
Braided, White, lb.....*15@20c*
Cable Laid Italian..lb. A, 18c; B, 16c
Common India..... *lb. 8½@9c*
Cotton Sash Cord, Twisted....*10@15c*
Patent Russia ..... *lb. 12 @13c*
Cable Laid Russia.....*lb. 13½@14c*
India Hemp, Braided.....*lb. 14@15c*
India Hemp ..... *lb. 9@10c*
Patent India, ... *lb. 10 c*
Pearl Braided, cotton ..... ₱ lb 16¢
Massachusetts, White ..... ₱ lb 20¢
Massachusetts, Drab. ..... ₱ lb 24¢
Edystone Braided Cotton..... ₱ lb 18¢
Harmony Cable Laid Italian..... ₱ lb 18¢
Ossawan Mills:
Crown, Solid Braided White...₱ lb 17¢
Braided, Giant, White.....₱ lb 16¢
Peerless:
Cable Laid Italian.....16¢
Cable Laid Russian.....13¢
Cable Laid India.....11¢
Braided India.....18¢
Phœnix, White..... .....17¢
Samson:
Braided, Drab Cotton.....₱ lb 31¢
Braided, Italian Hemp.....₱ lb 31¢
Braided, Linen .....₱ lb 44¢
Braided, White Cotton, Spot...₱ lb 27¢
Silver Lake:
A quality, Drab, 40¢.....15&10%
A quality, White, 35¢.....15&10%
B quality, Drab, 35¢.....15&10%
B quality, White, 30¢.....15&10%
Italian Hemp, 40¢ .....15&10%
Linen, 57½¢ .....15&10%

Wire, Picture—

Braided or Twisted .....*70@70d10%*

Corn Knives and Cutters

—See Knives, Corn.

Crackers, Nut—

Acme, Japanned, ₱ gr. $30.....40%
Acme, Nickel Plated, ₱ gr. $30.....20%
Turner & Seymour Mfg. Co.....50%

Cradles—

Grain.....*65%*

Crayons—

White Round Crayons, gross...*5@6c*
Cases, 100 gro., $4.50@$5 00, at factory.
See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—

Fort Madison, Heavy .....₱ doz. $7.00
Fort Madison, Light.....₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden .....₱ doz. $10.00

Cutters— Meat—

American.....30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Connecticut:

Nos.	0	1	8	10	12
Each	$1.73	2.25	3.00	3.00	3.50

Enterprise.....25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.50	$4	$6

Dixon's, ₱ doz.....33⅓%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Hale's, ₱ doz.....70%

Nos.	11	12	13
	$27.00	$33.00	$45.00

Home No. 1, ₱ doz. $26.00.....60%
Little Giant, ₱ doz.....50&10%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$71.00	$68.00

Miles' Challenge, ₱ doz.....45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

New Triumph No. 605, ₱ doz. $24.00 .. 33⅓&5%
Woodruff's, ₱ doz 33⅓%

Nos.	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers..... ..25@30%

Slaw and Kraut—

Henry Disston & Son's:
Slaw, Corn Grater, &c. 40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9.55%
Kraut Cutters 36 x 12, 40 x 12.....40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters.....50@50&10%
Slaw Cutters, 1 Knife, ₱ gr....$15@$18
Slaw Cutters, 2 Knife, ₱ gr...$20@$27

Tobacco—

All Iron, Cheap.....*doz. $4.50@$5.00*
Enterprise.....25@30%
National, ₱ doz. $21.00.....40%
Sargent's, ₱ doz. $24.00.....60@60&10%

Washer—

Appleton's, ₱ doz. $16.00.....
60&10@60&10&10%
Bonney's.....₱ doz. $4.75

Diggers, Post Hole, &c.—

Iwan's Improved Post Hole Auger....40%
Iwan's Perfection Post Hole Digger....
₱ doz. $10.00
Samson, ₱ doz. $34.00.....25%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—

See *Checks, Door.*

Door Springs—

See *Springs, Door.*

Drawers, Money—

Tucker' Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $12; No. 3, $11; No. 4, $12.

Drawing Knives—

See *Knives, Drawing.*

Drills and Drill Stocks—

Common Blacksmiths' Drill..each $1.50@$1.60
Blacksmiths' Self-feeding.....*each $5.00@6.00*
Bench Drills, Stearns'.....50@50&10%
Breast, Millers Falls, each $3.00 ....25%
Breast, P., S. & W.....40&10%
Goodell Automatic Drills..40&5@40&10%
Ratchet, Bignall & Keeler.....30&5%
Ratchet, Curtis & Curtis 25%
Ratchet, Ingersoll's.... .....25%
Ratchet, Parker's 40%
Ratchet, Weston's.....20@25%
Ratchet, Whitney's.....20&10%
Whitney's Hand Drill, No. 1, $10.00:
Adjustable, No. 10, $12.00.....33⅓%

Twist Drills—

Standard List.....*60d10&10@70d5%*

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—

See *Pans, Dripping.*

Drivers, Screw—

Balsey's Screw Holder and Driver, ₱ doz. 2½-inch, $6; 4-in., $7.50 6-in., $9..40%
Buck Bros.....30%
Buck Bros' Screw Driver Bits.....27½%
Champion.....40&10%
Disston's Flat Blade, Electric, &c.....70%
Douglass Mfg. Co.....20@20&10%
Fray's Hol. Hdle Sets, No. 3, $12.00 50%
Gay & Parsons' Ratchet.....35%
Goodell's Automatic
50&10&10@50&10&10&5%
Mayhew's Black Handle.....50%
Mayhew's Monarch.....45&10%
New England Specialty Co.....50&10%
New York, Manhattan and Handy...20%
Sargent & Co.'s:
Nos. 1, 20, 40 and 60.50&10@50&10&5%
Nos. 50 and 55.....50&10&10@60&5%
Screw Driver Bits.....₱ doz. 50@70¢
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles.....70&10%
No. 86.....75&10%

Egg Beaters—See *Beaters, Egg.*

Emery—*Nos. 4 to 5½ to Flour, CF:*

	46 gro.	180 gro.	F.F.F.
Kegs.....	*lb. 4¼c*	*5 c*	*5 c*
⅛ Kegs	*lb. 4¾c*	*5¼c*	*5¼c*
¼ Kegs	*lb. 5 c*	*5½c*	*5½c*
10-lb cans, 10 in case.....	*6 c*	*6¼c*	*5½c*
10-lb. cans, less than 10.....	*10 c*	*10 c*	*8c*

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—

See *Pins, Escutcheon.*

Extractors, Lemon Juice

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's..... .....50&10%

Faucets—

Cork Lined .....*70d5@70d10d5%*
Metallic Key, Leather Lined.....
65d10@70%
Red Cedar .....*50@50d10%*
B. & L. B. Co.:
West's Lock, Open and Shut Key50&10%
John Sommer's Peerless Tin Key.... 40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Metal Key.50&10%
John Sommer's Duplex Metal Key....60%
John Sommer's Diamond Lock.....40%
John Sommer's I. X. L. Cork Lined...50%
John Sommer's Reliable Cork Lined. 50&10%
John Sommer's Common Cork Lined.70%
John Sommer's Chicago Cork Lined..60%
John Sommer's O. K. Cork Lined.....50%
John Sommer's Perfection Cedar....40%
Star.....60@60&5%
Star, Metal Plug, new list.....40@40&5%
Stearns' Wood, No. 200, Wood-lined Key.....60%
Stearns' Matchless, Wood, No. 300.....
60&10%
Stearns' Gem, Wood, No. 400.....70%
Lockport, Metal Plug, reduced list.60&5%
Self Measuring:
Enterprise, ₱ doz. $36.00 . .. .40%
Lane's, ₱ doz. $33.00..... .....33⅓%
National Measuring, ₱ doz. $36.00...40%

Felloe Plates—

See *Plates, Felloe.*

Files—Domestic—

List revised June 1, 1899.

Best Brands .....*70@70d10d10%*
Good Brands.....*75d10@80d5%*
Fair Brands .....*80d5@80d10%*
Second Quality.....*80d10@85%*

Imported—

Stubs' Tapers, Stubs' list, July 24, '97..... .....25%

Fixtures, Grindstone—

Net Prices:

Inch....	15	17	19	21	24
Per doz.	$3.50	3 50	3.75	4.50	5 00

Stowell's Grant Grindstone Hanger.....
₱ doz. $6.00@7.00
Stowell's Grindstone Fixtures....55&10%
P., S. & W. Co.....50&10&10%
Reading Hardware Co.....30&20&10%
Sargent's Patent.....70&10@70&10&10%

Fluting Machines—

See *Machines, Fluting.*

Fodder Squeezers—

See *Squeezers, Fodder.*

Forks—

Aug. 1, 1899, list.
Hay, 2 tine..... .....65%
Hay, 3 tine 66⅔%
Manure, 4 tine 70%
Manure, 5 and 6 tine.....70%
Spading.....*70d5%*
Victor, Hay.....70%
Victor, Manure..... .....70&8%
Victor, Header.....70&2%
Champion, Hay.....60&20%
Champion, Manure.....70&5%
Columbia, Hay.....66⅔&5%
Columbia, Manure 70%
Columbia, Spading..... ..70&10%
Hawkeye Wood Barley 4 tine ₱ doz. $5.00; 6 tine, $6.00.
Plated.—See *Spoons.*

Frames—

Saw—

Red, Polished and Varnished..doz. $1 00@$1 10
White.....*gro. $3.25@$3.50*

Screens, Window and Door—

Bonanza Window Screens.....60@60&5%
Phillips' Window Screen Frames..60&5%
Porter's Extension Window Screens.. 60&5%
Stearns' Gem Window Screen Frames, per doz., No. 25, $1.75; No. 30, $1.80; No. 35, $1.85; No. 40 $1.90.
Wabash Spring Adj. Screen.....50%
Warner's Screen Corner Irons, Nos. 0B&00B.....50%

Freezers, Ice Cream—

Qts...	2	3	4	6	8	10
Best.	$1.50	1 60	1.85	2.30	3.00	3.90
Good	$1 25	1.35	1.70	2 05	2 65	3.50
Fair.	$1.00	1.10	1 30	1.75	2.30	2.90

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—

	Per 1000 Feet.
Hemp Fuse	*$2.60*
Cotton Fuse	*2.90*
Single Taped Fuse	*3.50*
Double Taped Fuse	*4.70*
Triple Taped Fuse	*5.70*

Gates, Molasses and Oil—

Stebbin's.....*80d20@85%*
Stearns' Molasses and Oil..... 50%

Gauges—

Marking, Mortise, &c......
60d10@60d10d10%
Barrett's Comb. Roller Gauge.....
₱ doz. $6.75@7.98
Stanley R. & L. Co.'s Butt & Rabbet Gauge.....25&10%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....10&10%

Gimlets—
Nail, Metal, Assorted ..gro. $1.40@1.75
Spike, Metal, Assorted gro. $3.00@3.50
Nail, Wood Handled, Assorted, gro. $4.00@4.50
Spike, Wood Handled, Assorted gro. $5.00@5.25

Glass, American Window
List Jan. 1, 1898.
Small lots from store:
Eastern.....80&20%
Western.....80&20&5%
From Factory, with Frt. Allowance:
Carloads.....80&15%
1000 boxes or more, Gulf Ports....85&10%
2000 boxes or more.....80&20%
5000 boxes or more.....85%

Glue—Liquid, Fish—
List A, Bottles or Cans, with Brush. 37½@50%
List B, Cans (½ pts., pts., qts.)..... 33⅓@45%
List C, Cans (½ gal., gal.)....35@45%

Glue Pots—See *Pots, Glue.*

Grease, Axle—
Allerton's Axle:
1 lb Tins, ₩ gr.....$9.00
3 lb Tin Pails, ₩ doz., $2.00; 5 lb, $3.00; 10 lb, $5.00.
25 lb wood pails.....₩ doz. $12.00
Dixon's Everlasting....10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs., ₩ doz. 1 lb $1.20; 3 lb $2.00
Lower grades, special brands, ₩ gr. $5.00@6.50

Grindstone Fixtures—
See *Fixtures, Grindstone.*

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—
gro.
Peg Patent, Leather Top..$1.90@5.85
Peg Patent, Plain Top....$3.50@3 75
Sewing, Brass Ferrule.....$1.50@1 60
Saddlers', Brass Ferrule..$1 35@1 45
Peg, Common.....$1.35@1 35
Brad, Common.....$1.35@1.50

Halters and Ties—
Covert Mfg. Co., Web.....45&2%
Covert Mfg. Co., Jute Rope.....45&2%
Covert Mfg. Co., Sisal Rope.....35&2%
Covert's Saddlery Works', 96 list.....70%

Hammers—
Handled Hammers—
Heller's Machinists'.....40@40&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75.....40&10%
Pease, Stow & Wilcox.....40@40&5%
Fayette R. Plumb:
Artisans' Choice, A. E. Nail..33⅓&7½%
Engineers' and B. S. Hand.....50&10%
Machinists' Hammers.....50&10%
A. E. & A. E., Bell Face Nail...33⅓&7½%
Sargent's C. S. New List.....45@50%

Heavy Hammers and Sledges—
3 lb. and under...lb. 45c
3 to 5 lb.....lb. 35c } 75&10@30%
Over 5 lb.....lb. 30c
Note.—Lower net prices sometimes made by jobbers.
Wilkinson's Smiths'.....9¼c@10c lb.

Handcuffs and Leg Irons
See *Police Goods.*

Handles—
Agricultural Tool Handles—
Hoe, Rake, Fork, &c..60¢10@60¢10&5%
Shovel, &c., Wood D Handle...60¢10%

Cross-Cut Saw Handles—
Atkins'.....40%
Champion.....45@45&10%
Disston's.....50%

Mechanics' Tool Handles—
Auger, assorted.....gro. $2.25@2.50
Auger, large.....gro. $2.75@3.00
Brad Awl.....gro. $1.40@1.50
Chisel Handles:
Apple Firmer, gro. ass'd. $2.25@2.50; large, $2.75@3.00.
Hickory Firmer, gro. ass'd, $2.25@2.50; large, $2.50@2.75.
Socket, gro. ass'd, Firmer, $1.50@1.60; Framing, $2.50@2.75.
File, assorted.....gro. $1.00@1.15
Hammer, Hatchet, Axe, &c....50¢10%
Hoe, Rake and Fork.....60¢10@60¢10&5%
Shovel and Spade, Wood D H'dle..60¢1%
Hand Saw, Varnished, doz. 75@80c
Not Varnished.....55@60c
Plane Handles:
Jack, doz. 12@15c; Jack Bolted..55@60c
Fore, doz. 35@38c; Fore, Bolted..70@75c

Hangers—
Barn Door, New Pattern, Round Groove, Regular:

Inch	3	4	5	6	8
Doz.	$1.28	1.68	2.16	2.64	3.30

Barn Door, New England Pattern, Check Back, Round Groove, Regular:

Inch	3	4	5	6
Doz.	$3.36	3.74	4.84	6.16

Bigelow & Dowse Co.:
Paragon, No. 1, $3.50; No. 2, $4.50; No. 3, $5.50 ₩ doz.
Chicago Spring Butt Co.:
Friction.....35@35&10%
Oscillating.....35@35&10%
Big Twin.....35@35&10%
Chisholm & Moore Mfg. Co.:
Advance.....55%
Cleveland.....60%
Baggage Car Door.....50%
Elevator.....40%
Railroad.....55%
Lane Bros.:
Parlor, Standard.....40&5&2½%
Parlor, New Model.....40&2½%
Barn Door, Standard.....60&2½%
Covered.....50&10&10%
Special.....60&5%
Lawrence Bros.:
Crown.....60&10%
New York.....60&10@60&10&5%
Sterling.....60&10%
McKinney Mfg. Co.:
No. 2, Standard, $18.....60&10%
No. 1, Special, $13.....60&10%
E. C. Stearns & Co.:
Gem Parlor Sliding Door.....60%
Challenge.....60%
Steel Single Track Parlor.....60&20%
Royal Parlor Door.....60%
Warner's Pat.....40%
Warner's Imp'd Single.....50%
Stowell Mfg. and Foundry Co.:
Badger.....60&10%
Baggage Car Door.....33⅓%
Climax Anti-Friction.....55&5%
Elevator.....40%
Interstate.....60&15%
Magic.....50&10%
Matchless.....60&10%
Nansen.....60&10%
Parlor Door.....50&10%
Railroad.....55&5%
Street Car Door.....50&10%
Steel, Nos. 300, 400, 500.....45&15%
Wild West.....50&5%
Zenith for Wood Track.....55&5%
Taylor & Boggs Foundry Co.:
Kidder's.....50@50&10%
Van Wagoner & Williams Hdw Co.:
American Trackless.....33⅓&10%
Wilcox Mfg. Co.:
Aurora Steel Endless.....60%
Bike Roller Bearing....60&10&10%
Bike Steel Endless.....60&10&10%
C. J. Roller Bearing.....60&10&10%
Cycle Ball Bearing.....60&10%
Dye Steel.....60&10%
Economical Single Track.....50&10&5%
L. T. Roller Bearing.....70%
New Era.....50&10%
New Richards.....60%
O. K. Roller Bearing.....70%
Prindle Improved.....60&10%
Richards' Improved.....60&10%
Richards' Single Track.....50&10%
Wilcox Dwarf Roller Bearing.....40&10%
Wilcox-Ives.....60&10%
Wilcox Tandem Roller Bearing.....60&10%
Wilcox Trolley Ball Bearing.....40&10%
Wilcox Trolley Roller Bearing..50%
Wilcox Trolley Roller Bearing, Fire.....40&10%
Wood Track.....60%

Extra 5@10% often given.

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—
McKinney's Perfect Hasp, ₩ doz. $1.10 40&10%
Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—
Best Brands.....40¢12½@50¢5%
Cheaper Brands.....50¢10@60¢5%
Note.—Net prices often made.

Hay and Straw Knives—
See *Knives.*

Hinges—
Blind Hinges—
Lull & Porter:

No.	1	1½	2	2½
Doz. pair	$0 63	.65	.69	.82

1868 Old Pattern:

No.	1	3	5
Doz. pair	$0.74	1.38	2.67

Parker.....75&10@75&10&5%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Reading's Gravity.....75&10%
Sargent's, Nos. 1, 3, 5, 11, 13..75@75&10%
Wrightsville H'dware Co.:
Acme, Lull & Porter.....75%
Buffalo Gravity Locking, Nos. 1, 3 and 5.....75%
Champion Gravity Locking, No. 75.80%
1868, Old Pat'n, Nos. 1, 3 & 5...75&10%
Tip Pattern, Nos. 1, 3 and 5.....75&10%
Double Locking, Nos. 20 and 25.70&10%
Empire, Nos. 101 and 103.....70%
Niagara Gravity Locking, Nos. 1, 3 and 5.....75&15&5%
Noiseless, Nos. 50, 60, 65 and 55.75&5%
O. S. Lull & Porter.....75&5%
Pioneer, Nos. 060, 45 and 5½.....75&5%
Steamboat Gravity Locking, No. 10..80%
Stanley's Steel Gravity Blind Hinges, ₩ doz. sets $1.20.....20&10%

Spring Hinges—
Holdback, Cast Iron..... gro. $5.50@6.75
Non-Holdback, Cast Iron..... gro. $5.50@5.75

J. Bardsley:
Bardsley's Patent Checking.....15%
Bommer Bros.:
Bommer's.....40%
Chicago Spring Butt Co.:
Chicago.....25%
Garden City Engine House.....25%
Keene's Saloon Door.....25%
Lawson Mfg. Co.:
Matchless.....25%
Matchless Pivot.....40%
Payson Mfg. Co.:
Oblique, Dbl. Acting.....50@50&5%
E. C. Stearns & Co.:
Nos. 45 and 51.....75%
Stover Mfg. Co.:
Ideal, No. 16, Detachable, ₩ gr. $12.50
Ideal, No. 4.....₩ gr. $9.00
New Idea No. 1.....₩ gr. $9.00
New Idea, Double Acting.....45%
Van Wagoner & Williams Hdw. Co.:
Acme.....30&5%
American.....30%
Columbia, No. 14.....₩ gr. $8.00
Columbia, No. 18.....₩ gr. $24.00
Crown.....30%
Gem.....30%
Knoxall.....₩ gr. $9.00
Oxford.....30%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list Mar. 15, 1898:
Light Strap Hinges.....70%
Heavy Strap Hinges...70¢10%
Light T Hinges.....60¢5%
Heavy T Hinges.....66⅔%
Extra Heavy T Hinges....70%
NOTE.—*Change in base discounts.*
Extra 5@25 50@55
Rolled Plate.....70@70¢10%
Screw Hook and Strap. { *6 to 12 in..lb 3¼@3½c; 14 to 20 in..lb. 3 @3¼c; 22 to 36 in..lb. 2.75@3 c*

Hoes—
Eye—
Scovil and Oval Pattern..60@60¢10%
Grub, list Feb. 23, 1899.....70¢10@75%
D. & H. Scovil.....35@35&5%

Handled—
Aug. 1, 1899, List:
Field and Garden.....75¢5%
Ladies', Boys', Toy and Onion...70¢10¢10%
Street and Mortar.....75¢7½¢2%
Cotton.....75¢10¢10¢2%
Planters'.....70¢30%
Weeding.....75%
Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.
Ft. Madison Crucible Garden Hoe.....75&2%
Ft. Madison Crescent Cultivator Hoe, per doz.....75&10&2%
Ft. Madison Matlock Hoe, ₩ doz....$4.50
Ft. Madison Sprouting Hoe, ₩ doz..$4.80
Ft. Madison Dixie Tobacco Hoe.....75&20%
Kretsinger's Cut Easy, per doz....75&2%
Warren Hoe.....%

Hog Rings and Ringers—
See *Rings and Ringers.*

Hoisting Apparatus—
See *Machines, Hoisting.*

Hollow Ware—
See *Ware, Hollow.*

Holders—
Bit—
Angular, ₩ doz. $24.00.....45&10%

File and Tool—
Nicholson File Holders and File Handles.....33⅓%

Hooks—
Cast Iron—
Bird Cage, Reading.....
Bird Cage, Sargent's List. } ...66⅔@70%
Clothes Line, Sargent's List...50@50&5%
Ceiling, Sargent's List.....50@50&5%
Clothes Line, Stowell's.....70&5%
Clothes Line, Reading List 65&10@65&10&10%
Coat and Hat, Stowell's.....70&5%
Coat and Hat, Reading.....70@75%
Coat and Hat, Sargent's List.....50&10%
Coat and Hat, Wrightsville.....65&10%
Harness, Reading List.....70&10@75%

Wire—
Belt.....80&10@80&10&10%
Atlas, Coat and Hat.....50@50&10%
Wire Coat and Hat:
Acme.....60@60&5%
B. B.....70@70&5%
Gem.....66⅔%
Bright Wire Goods—See *Wire.*

Wrought Iron—
Box, or Case, Octagon Steel.... doz. $2.00@2.15
Cotton..... doz. $1.00@1.10
Picture, T. & S. Mfg. Co.....75%
Tassel, T. & S. Mfg. Co.....50&10%
Wrought Staples, Hooks, &c.—See *Wrought Goods.*

Miscellaneous—
Bush, Light, doz. $5.00; Medium, $5 50; Heavy, $6.00

Grass	Nos. 1	2	3	4
Best	$1.60	1.75	2.00	
Common	$1.50	1.50	1.50	1.75

Potato and Manure..... 75¢15%
Whiffletree.....lb. 4½c
Hooks and Eyes:
Brass.....70¢10@75%
Malleable Iron.....75¢10%
Covert Saddlery Works' Self Locking Gate and Door Hook, 4 in. ₩ gross $13.00; 6 in. $17.20.....70%
Crown Picture.....50&10%
Bench Hooks—*See Bench Stops.*
Corn Hooks—*See Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—
See *Shoes, Horse.*

Hose, Rubber—
Garden Hose, ¾-inch:
Competition.....ft. 4¾@ 5½c
3-ply Standard.....ft. 5½@ 6 c
4-ply Standard.....ft. 6½@ 6¾c
3-ply extra.....ft. 6½@ 7½c
4-ply extra.....ft. 7½@ 8½c
High Grade.....ft. 9 @11 c
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 5½@6c
Fair quality.....ft. 7 c
Good quality.....ft. 8 @ 8½c

Irons—Sad—
From 4 to 10..... lb 3½@3¾c
B. B. Sad Irons..... lb. 3¾c
Chinese Laundry.....lb. 4¼@4½c
Chinese Sad.....lb. 3¾@3¼c
Mrs. Potts', per set:

Nos.	50	55	60	65
	70@77c	65@72c	75@81c	70@76c

New England Pressing.....lb. 3c

Soldering—
Soldering Coppers.....lb. 25@35c
Covert Mfg. Co.....60&2%

Pinking—
Pinking Irons.....dos. 50@60c

Jack Screws—See *Screws.*

Jacks, Wagon—
Covert Mfg. Co., Steel.....45&2%
Daisy, ₩ doz. $12.00.....70%
Lookport.....40@40&10%
Victor, ₩ doz. $20.00.....70%
Lane's Steel.....33⅓%

Kettles—
Brass, Spun, Plain, list Jan. 10, '99 15@20%
Enameled and Tea—See *Ware, Hollow.*

Knife Sharpeners—
See *Sharpeners, Knife.*

Knives—
Butcher, Shoe, &c.—
Dick's Butcher Knives.....40%
Foster Bros.' Butcher, &c.....80%
Nichols' Butcher Knives.....50%
Table and Pocket Cutlery and John Wilson's Butcher Knives—Net prices.
Hay and Straw—See *Hay Knives.*

Corn—
Ft. Madison Cut-Easy, ₩ doz.....$3.25

Drawing—
Standard List.....75&5@75&10%
Adjustable Handle.....35@33⅓%
Bradley's.....35%
Swan's.....75@75&5&2½%
Watrous.....30&10@40%
L. & J. White.....20&5@25%
Cautelo's Folding.....50@50&5%

Hay and Straw—
Blizzard, from Jobbers.....$5.75@6.00
Iwan's Sickle Edge.....₩ doz. $11.50
Lightning, from Jobbers.....$6.50@7.00

Mining—
Buffalo.....₩ gro. $15.00
Smith's, ₩ doz., Single, $2; Double, $3 45@50%

Miscellaneous—
Farriers'.....dos. $2.00@2.00
Westenholme's.....₩ dos. $3.00@3.25

Knobs—
Base, 2¼-inch, Birch, Rubber tip, gro.....$1.20@1.25
Carriage, Jap, all sizes..gro. $7@30c
Door, Mineral.....doz. 62½@65c
Door, Por. Jap'd.....doz. 75@75c
Door, Por. Nickel....doz. $1.70@1.80
Bardsley's Wood Door, Shutter, &c....15%
Picture, Sargent's.....70&10%
Snow's Victor.....50&10%

Ladies—Melting—
P., S. & W.....35&10@40%
Reading.....50&10%
Sargent's.....60@60&10%

Lanterns—Tubular—

	Doz.
Regular Tubular	$3.00
Side Lift Tubular	$3.50 } 40&5@
Square Lift Tubular	$3.50 } 40&10&5%

Meyrose S.de Lift Tubular, doz. $8.50.....50&10&5%

Bull's Eye Police—
2¼-inch flash light....doz. $2.50@3.75
3-inch flash light.....doz. $4.00@4.25
2¼-inch regular.....doz. $2.25@3.50
3-inch regular.....doz. $3.50@3.75

Latches, Thumb—
Roggin's Latches.....dos. 28c@30c

Lawn Mowers—
See *Mowers, Lawn.*

Leaders, Cattle—
Small.....dos. 45c; *large, 50c*
Covert Mfg. Co.....45&2%

Lemon Squeezers—

See *Squeezers, Lemon.*

Lifters, Transom—

Dickson:
3 x 4 ft. x ¼ ..... ₱ 100 $10.00
Other sizes, Iron ..... 70&10%
Other sizes, Brass ..... 70&10%
Excelsior ..... 60@60&10%
Payson's:
Solid Grip Nos. 303 and 304, ₱ 100, $11.00
Other sizes ..... 70&10%

Lines—

Wire Clothes, Nos... 18 19 20
100 feet $2.50 $2 25 $2 00
75 feet $1.50
Ossawan Mills.
Crown Solid Braided Chalk 33⅓%
Mason's, No. 0 to No. 5 ..... 33⅓%
Silver Lake Braided Chalk, No. 0, $6.00;
No. 1, $6.50; No. 2, $7.00; No. 3, $7.50
₱ gr. 30%

Locks, &c.— Cabinet—

Cabinet Locks ..... 33⅓@40%

Door Looks, Latches, &c.—

[Net prices are very often made on these goods.]
Reading ..... 60@60&10%
R. & E. Mfg. Co. ..... 50&10@60&5%
Sargent & Co. ..... 60@60&10%
S. B. & Co., Locks, Knobs, &c. 40@40&5%
Snow's Victor ..... 50&10%

Elevator—

Stowell's 33⅓%

Padlocks—

Wrought Iron, list Dec. 3, '97.....
70&5@70&10&5%
Dog Collar, S. B. Co. 40%
R. & E. Mfg. Co. Wrt. Steel a d Brass. 50%
S. B. & Co. 40%

Sash, &c.—

Fitch's Patent ..... 65&10%
Ives' Patent ..... 62½&10@66⅔&10%
Payson's Perfect 70%
Payson's Signal (new list) ..... 75&10%
Reading ..... 60&10&10@70%

Machines—

Boring—

	Without Augers. Upright.	Angular.
Douglas	$2.50	$3.00
Jennings'	2.50	3.00
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75

Fluting—

Crown Jewel, 6 in. ..... $2.50@2.75

Hoisting—

Moore's Anti-Friction Differential Pulley Block 30%
Moore's Hand Hoist, with Lock Brake. 20%

Washing—

Wayne American, ₱ doz. $27.00
Western Star, No. 2, ₱ doz. 28.00
Western Star, No. 3, ₱ doz. 30.00
St. Louis, No. 41, ₱ doz. 60.00
Carload lots 10% off, freight allowed.

Mallets—

Hickory ..... 50@50&10%
Lignumvitæ ..... 50@50&10%
Tinners', Hickory and Applewood, doz. ..... 50@55c
Fiber Head Stearns' ..... 30&10%

Mattocks—

List Feb. 23, 1899... 60&10@60&10&10%

Meat Cutters—

See *Cutters, Meat.*

Milk Cans—See *Cans, Milk.*

Mills— Coffee—

Box and Side, list Jan. 1, '88.....
60&10@60&10&10%
Net prices are often made on some goods which are lower than above discounts.
Enterprise Mfg. Co., list Jan. 17, '99..30%
National, list Jan. 1, '94 ..... 30%
Parker's Columbia and Victor....60&10%
Parker's Upright ..... 30&10@40%
Swift, Lane Bros. 30%

Mincing Knives—

See *Knives, Mincing.*

Molasses Gates—

See *Gates, Molasses.*

Money Drawers—

See *Drawers, Money.*

Mowers, Lawn—

Net prices are generally quoted.

	10	12	14	16-inch
Cheap	$1.75@$1.85, all sizes.			
Good	3.00	3.25	3.50	3.75
High Grade	4 00	4.25	4.50	4.75

Pennsylvania and Continental...60&10%
Philadelphia:
All Styles except A and E.. ....70&10%
Style A, all Steel ..... 60&10%
Style E, Low Wheel ..... 60&10%
Style E, High Wheel ..... 70&10%
Racine ..... 60&10&10%

Nails—

Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered. List July 20, 1899,.
80&10@80&10&5%
Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—

Nos.	6	7	8	9	10
A. C.	25¢	23¢	22¢	21¢	21¢
					40&10&5%
American	9½	9½	9½	9½	9½...net
Ausable	28¢	26¢	25¢	24¢	23¢
					40&10&10%
Capewell	19¢	18¢	17¢	16¢	16&10&5%
C. H. K.	25¢	23¢	22¢	21¢	21¢...40%
Champlain	28¢	26¢	25¢	24¢	23¢
					40&5&2%
Clinton Fin.	19¢	17¢	16¢	15¢	14¢30&5%
Maud S.	25¢	23¢	22¢	21¢	21¢
					50&10&5%
Neponset	23¢	21¢	20¢	19¢	18¢...40%
Putnam	23¢	21¢	20¢	19¢	18¢.33⅓%
Vulcan	23¢	21¢	20¢	19¢	18¢...25%

Picture—

	1½	2	2½	3	3½ in.
Brass Head.	.90	.95	1.00	1.05	1.10 gro.
Por. Head...	.85	.90	.95	1.10	1.15 gro.

Nippers, See *Pliers and Nippers.*

Nut Crackers—

See *Crackers, Nut.*

Nuts—List Feb. 1, 1899.

List Feb. 1, '99.
Cold Punched. Off
Mfrs. or U. S. Standard list.
Hexagon, plain ..... 4.80@5.00c
Square, plain ..... 4.80@5.00c
Square, C. T. & R. ..... 4.60@4.80c
Hexagon, C. T. & R. ..... 5.10@5.30c
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square ..... 5.00@5.20c
Hexagon ..... 5.40@5.60c

Oakum—

Best or Government ..... lb. 5¾c
Navy ..... lb. 4¾c
U. S. Navy ..... lb. 5¼c
Plumbers' Spun Navy 5¾c
In carload lots ¼c lb. off f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper ..... 50&10@60%
Tin or Steel ..... 70@70&10%
Zinc ..... 70@70&10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₱ doz. 20%
Malleable, Hammers' Old Pattern, same list ..... 50&10%
Wilmot & Hobbs Mfg. Co ..... 70@75%

Openers, Can—

French ..... doz 35c
Iron Handle ..... doz 60@75c
National, ₱ gro. ..... $1.75@$2.00
Sardine Scissors ..... ₱ doz. $2.00@$2.10
Sprague, Iron or Wood Handles.....
₱ doz. 40@45¢
Stowell's ..... 75&10%

Packing—

Rubber—

Standard, fair quality.... 70&10@75%
Inferior quality ..... 75&10@80%
Extra ..... 60&5@60&10&5%
Jenkins' Standard, ₱ ℔ 80¢....25@25&5%

Miscellaneous—

American Packing ..... 9@10c lb.
Cotton Packing ..... 13@14c lb.
Italian Packing ..... 10½@11¼c lb.
Jute ..... 5@5¼c lb.
Russia Packing ..... 12@13c lb.

Pails—

Creamery—

S. S. & Co., with gauges.. No 1 $6.50; No. 2, $7.00 ₱ doz. .....

Galvanized—

Inch	10	12	14
Water, Standard, gro	$21.00	$23.00	$25.00
Water, Competition, gro	20.00	22.00	24.00
Fire, Ed. Bottom, gro	28.00	31.00	33.00
Well, gro	29.00	31.00	34.00

Pans—

Dripping—

Large Sizes ..... lb. 4¾c
Small Sizes ..... lb. 5¼c

Fry—

Standard List ..... 80@80&10%

Roasting and Baking—

Regal, S. S. & Co., ₱ doz., Nos. 5, $4.25; 10, $4.75; 20 $5.25; 30, $5.75
Simplex, ₱ doz., No. 40, $29.50; 50, $33.00; 60, $36.00.

Paper—

Building Paper—

	Per roll
Rosin Sized Sheathing:	500 sq. ft.
Light wt., 20 sq. ft. to lb	$0 35@0 40
Medium wt., 12 sq. ft. to lb	$0.55@0.60
Heavy wt., extra quality	$0.95@1.05
Barrett's Water Proof Sheathing..	$1 35@1.75
Medium Grades Water Proof Sheathing	$0 80@1.25
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton	$40.00@41.00

Tarred Paper.

1 ply (roll 300 sq ft), ton $35 00@37.00
2 ply, heavy, roll 100 sq. ft. 90c
2 ply, light, roll 100 sq. ft. 75c
3 ply, heavy, roll 100 sq. ft. $1 20
3 ply, light, roll 100 sq. ft $1.00

Sand and Emery—

List April 19, 1886 ..... 50&5@60%

Parers—

Apple—

Advance ..... ₱ doz. $4.50
Baldwin ..... ₱ doz. $5.00
Bonanza ..... each $5.00
Dandy ..... each $7.50
Eureka, 1898 ..... each $16.00
Family Bay State ..... ₱ doz. $12.00
Hudson's Little Star ..... ₱ doz. $4.00
Hudson's Rocking Table ..... ₱ doz $5.50
Improved Bay State ₱ doz. $27.00@30.00
New Lightning ..... ₱ doz. $5.50
Reading 72 ..... ₱ doz. $4.00
Reading 78 ..... ₱ doz. $7.00
Turn Table ..... ₱ doz. $4.50
Turn Table '98 ..... ₱ doz. $5 50
White Mountain ..... ₱ doz. $4.00

Potato—

Saratoga ..... ₱ doz. $5.50
White Mountain ..... ₱ doz. $4.50

Paris Green—

Arsenic, kegs or casks.. lb. 12 @12½c
Kegs of 100 to 175 pounds. ..... lb. 12½@13 c
Kits of 14, 25 and 56 pounds ..... lb. 13¼@14 c
Paper boxes 2 to 5 pnds.. lb. 13¼@ 14c
Paper boxes 1 pound... lb. 14 @14½c
Paper boxes ½ pound... lb. 15 @15½c
Paper boxes ¼ pound... lb 16 @16½c
Note.—These prices are sometimes shaded by jobbers.

Picks and Mattocks—

List Feb 23, 1899... 60&10@60&10&10%

Pinking Irons—

See *Irons, Pinking.*

Pins—

Escutcheon—

Brass ..... 60@60&5%
Iron, list Nov 11, '85..... 60@60&5%

Pipe, Cast Iron Soil—

Factory Shipments.

Standard, 2-6 in. 60%
Extra Heavy, 2 6 in. 65%
Fittings ..... 60&10&10@70%

Pipe, Wrought Iron—

Factory Shipments.
List February, 1899.
Plain and Galvanized:
Carload lots. ..... 50&10&10&5%
Less than carload lots... 60&10&10%
Screw and Socket Casing, ... 40%
Inserted Joint Casing 35%
Cold Drawn Seamless Steel Tubing.. 60%

Planes and Plane Irons—

Wood Planes—

Molding ..... 40&12½@40&5%
Bench, First quality ..... 45&10@45&10&5%
Bench, Second quality ..... 50&10@50&10&5%
Bailey's (Stanley R. & L. Co) 50&10&10@50&10&10%
Gage Self Setting 35%

Iron Planes—

Bailey's (Stanley R. & L. Co)..... 50&10&10@50&10&10%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 25&10&10@25&10&10&10%
Sargent's ..... 60&10&10@70%

Plane Irons—

Standard List. ..... 30&5@30&10%
Buck Bros. 30%
Butcher's ..... $5.00@5.25 to 2
Stanley R. & L. Co... 50&10@50&10&10%
L. & I. J. White ..... 20&5@25%

Plates—

Felloe ..... lb. 5¼@5¾c
Self-Sealing Pie Plates (S. S. & Co.), ₱ doz. $3.00 ..... 50%

Pliers and Nippers—

	Gas.... 7	8	9	10-in.
Best....	$5.25	$6.00	$6.50	dos.
Good....	$2.50	2.75	3.00	3.50 dos.

Acme Nippers 50%
Bernard's:
Parallel Pliers, &c. 33⅓%
Paragon Pliers 60%
Lock Pliers 50%
Elm City Fence Pliers 3⅓%
Button's ..... 65&70%
Heller's Farriers' Pincers and Tools..
40@40&5%
Morrill's Parallel, ₱ doz. $12.00...30&5%
P., S. & W. Cast Steel ..... 50@50&5%
P., S. & W. Tinners' Cutting Nippers, add 6% 10%
Utica Drop Forge & Tool Co.:
Combination Pliers ..... 40&5%
Side Cutting Pliers ..... 40&5%
Hall Patent Nipper ..... 40&5%
Round and Flat Nose Pliers ..... 40&5%
End Cutting Pliers ..... 40&5%
Royal Blue ..... 40&5%
Glass Pliers ..... 40&5%
Burner Pliers ..... 40&5%

Plumbs and Levels—

Plumbs and Levels .....
70¢10¢10@75¢10¢10%
Disston's 70%
Pocket Levels ..... 75&10&10@75&10%
Stanley R. & L. Co. .....
70&10&10@70&10&10&10%
Stanley's Duplex..... 25&10@25&10&10%
Woods' Extension 33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ₱ doz.. No. 1, $4.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00 ..... 50%

Points, Claziers'—

Bulk and 1 lb. papers.. lb. 10½@11¼c
½-lb. papers ..... lb. 11 @12 c
¼-lb. papers ..... lb. 11½@12½c

Pokes, Animal—

Ft. Madison Hawkeye ..... ₱ doz. $3.00
Ft. Madison, Western ..... ₱ doz. $3.50

Police Goods—

Manufacturers' Lists..... 25@25&10%
Tower's 25%

Polish—Metal—

Prestoline Liquid, No. 1 (¼ pt.), ₱ doz. $3.00; No. 2 (1 qt.), $9.72 ..... 40%
Prestoline Paste ..... 33⅓@40%
U. S. Metal Polish Paste, 3 oz. boxes, ₱ doz. 50¢; ₱ gr. $4.50; ½ ℔ boxes, ₱ doz. $1.25; 1 ℔ boxes, ₱ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₱ doz. $1.25; ₱ gr. $12.00.
Barkeepers' Friend Metal Polish, ₱ doz. $1.75; ₱ gr. $18.00.
Wynn's White Silk, ½ pt. cans, ₱ doz. $1.50

Stove—

Joseph Dixon's, ₱ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ₱ ℔ 8¢
Fireside ..... ₱ gr. $2.50
Gem, ₱ gr. $4.50 ..... 10%
Japanese ..... ₱ gr. $3.50
Jet Black ..... ₱ gr. $3.50
Wynn's Black Silk, 5 ℔ pail..... ₱ ℔ 12¢
Wynn's Black Silk, ½ ℔ box, ₱ doz. $1.00
Wynn's Black Silk, ¼ oz. box, ₱ doz. $0.75
Wynn's Black Silk, 8 oz. liq., ₱ doz. $1.00

Poppers, Corn—

Round or Square:
1 qt. ..... gro. $7.00@$8.00
1½ qt. ..... gro. 9 00@ 10.00
2 qt. ..... gro. 10.50@ 12.00
Quincy Corn Popper, 1 qt., ₱ gr. $18.00; 2 qt., $24.00.

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Potato Parers—

See *Parers, Potato.*

Pots— Glue—

Enameled ..... 40&10&5@50%
Tinned ..... 40&5@40&10%

Powder—

In Canisters:
Duck, 1 lb. each 45c
Fine Sporting, 1 lb. each 75c
Rifle, ½-lb. each 15c
Rifle, 1-lb. each 25c
In Kegs:
Duck, 6¼-lb. kegs $3.25
Duck, 12½-lb. kegs $4.25
Duck, 25-lb kegs $5.00
Rifle, 6¼-lb. kegs $1.25
Rifle, 12½-lb. kegs $2.25
Rifle, 25-lb. kegs $4.00
King's Smokeless:
Keg (25 ℔ bulk) $20 00
Half Keg (12½ ℔ bulk) $10.25
Quarter Keg (6¼ ℔ bulk)..... $5.25
Canister (1 ℔ bulk) $0.90
Case, 1 ℔ Canisters (50 ℔ bulk) $45.00
Half Case, 1 ℔ Canisters (25 ℔ bulk) $22.75
25&10&5%
King's Semi-Smokeless:
Keg (25 ℔ bulk) $16.00
Half Keg (12½ ℔ bulk) $8.25
Quarter Keg (6¼ ℔ bulk)..... $3.75
One Pound Can, bulk $0.50
20&5%

Presses—

Fruit and Jelly—

Enterprise Mfg. Co. ..... 20@25%

Pruning Hooks and Shears—See *Shears.*

Pullers, Nail—

Crown, ₱ doz. $18.00 ..... 50%
Crown Prince, ₱ doz. $15.00 ..... 50%
Giant, No. 1, ₱ doz. $18; No. 2, $16.50; No. 3, $15 ..... 40%
National, ₱ doz. $24.00 ..... 50%
Pelican, ₱ doz. $9.00 ..... 15&10%
Scranton No. 1 and 2, ₱ doz. $9.00
Scranton, No. 3, ₱ doz. $8.50

Pulleys—

Hay Fork, Swivel or Solid Eye ..... doz. $1.75@2.00

Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, ₱ doz. $12.00..... 40%
Hot House, Awning, &c.....60@60&10%
Japanned Clothes Line.....60@60&10%
Japanned Screw.....70&10&10%
Japanned Side.....70&10&10%
Stowell's Ceiling or End, Anti-Friction 40%
Stowell's Dumb Waiter, Anti-Friction 50%
Stowell's Electric Light.....33⅓&5%
Stowell's Side, Anti-Friction.....50%
Sash (Auger Mortise):
Common Sense, 1¾ in., ₱ doz., 18¢; 2 in., 20¢.
Empire.....1¾ in., 17¢; 2 in., 19¢
L. C.....1¾ in., 15¢; 2 in., 17¢
Ideal No. 13.....1¾ in., ₱ doz., 18¢
Improved.....1¾ in., 17¢; 2 in., 19¢
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Troy.....1¾ in., 15¢; 2 in., 19¢
Star.....1¾ in., 16¢; 2 in., 19¢
Acme.....1¾ in., 18¢; 2 in., 20¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern ..... 60&5%
Pitcher Spout 75%
Pump Leathers, all sizes....gro. $6.00
Flint & Walling's Fast Mail.....50@55%
Flint & Wal ing's Pitcher Spout 75%
Myer's Pumps, low list 50%
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.....20%

Punches—

Revolving.....doz. $3.50@3.75
Saddlers' or Drive, good..doz. 60@65c
Spring, good quality.....$1.70@1 80
Bemis & Call Co.'s Cast Steel Drive.50&5%
Bemis & Call Co.'s Check 55%
Bemis & Call Co.'s Spring .....50&5%
Bemis & Call Co.'s Springfield Socket..65%
Niagara Hollow Punches.....45%
Niagara Solid Punches.....55%
Spring, Leach's Pat.....15%
Steel Screw, B. & K. Mfg. Co.....50%
Tinners' Hollow, P., S. & W. Co....20&2%
Tinners' Solid, P., S. & W.Co., ₱ doz., $1.44.....55%

Rail—

Barn Door, &c.—

Barn Door, Light..In.	⅛	⅝	⅞
100 feet.....	*$1.50*	*$1.95*	*$2.60*

B. D., for N. E. Hangers:

	Small.	*Med.*	*Large.*
100 feet.....	*$1.60*	*2.00*	*2.50*

Sliding Door, Bronzed Wr't Iron, ft. 6¼c
Sliding Door, Iron Painted..2¼@2½c
Sliding Door, Wrought Brass, 1¼ in. ..... lb. 36c..50%
Cronk's Double Braced Steel Rail, ₱ foot.....3¼¢
Lanes' O. N. T., ₱ 100 ft., 1 inch....$3.00
Lanes' Standard, ₱ 100 ft.....4.25
McKinney's None Better.....₱ ft. 2¾¢
McKinney's Standard.....₱ ft. 3¼¢
Moore's, Wr't. Bracket, Steel .....3¼¢
Stowell's Steel Rail.....35&10%
Terry's Steel Rail .....₱ ft. 3¼¢

Rakes—

Aug. 1, 1899, List:
Cast Steel.....70&5&2%
Malleable.....66⅔%
Fort Madison Red Head Lawn.....$3.25
Fort Madison Blue Head Lawn.....$3.00

Rasps, Horse—

Disston's 75%
Heller Bros.....60&10& 0%
New Nicholson Horse Rasp.....70&10%
See also *Files.*

Razor Strops—

See *Strops, Razor.*

Reels—

Fishing—

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Populo and Salmon, Single Action, Multiplying and Quadruple, all sizes.....25%
Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 304 P and PN, 00304P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor.50%
Hendryx Multiplying and Quadruple Series, 3004N and PN, 42N and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN.....40&10%

Registers—

For points on Mississippi River and East:
Black Japanned.....40%
White Japanned.....30%
Bronzed Finishes.....40%
Nickel Plated.....40%
Electro Plated in Brass, &c.....40%
White Porcelain.....30%
Solid Brass and Bronze Metal..25%
Note.—Higher prices are quoted in territory further West.

Rings and Ringers—

Bull Rings—

	1	*2½*	*3 Inch*
Steel.....	*$0.90*	*1.00*	*1.05 doz.*
Copper.....	*1.10*	*1.20*	*1.35 doz.*

Hog Rings and Ringers—

Hill's Rings....gro. boxes, $3.75@4.00
Hill's Ringers, C. I.....doz. 50@55c
Blair's Rings.....₱ gro. $4.25@4.50
Blair's Ringers.....₱ doz. 55@60¢
Brown's Rings.....₱ gro. $4.25@4.50
Brown's Ringers.....₱ doz. 55@60¢
Perfect Rings.....₱ gro. $7.25@7.75
Perfect Ringers, ₱ doz.....75@80¢

Rivets and Burrs—

Copper.....40&10@50%
Iron or Steel:
Tinners' .....60@60&10%
Miscellaneous .....60@60&10%

Rivet Sets—See *Sets.*

Roasting and Baking Pans—See *Pans, Roasting and Baking.*

Rollers—

Acme, Stowell's Anti-Friction....50&10%
Barn Door, Sargent's list.60&10&10@70%
Lane's, Stay .....33⅓&5%
Stowell's Barn Door Stay...₱ doz. $1.00

Rope—

Manila, 7-16 in. and larger. lb. .. @11½c
Manila.....⅜-inch. lb. .. @12 c
Manila..¼ and 5-16 in. lb. .. @12½c
Manila, Tarred Rope, 15 thread.....lb. .. @11½c
Manila Hay Rope Med'm.lb .. @11½c
Sisal, 7-16 in. and larger, lb. .. @ 9½c
Sisal.....⅜-inch. lb.... @10 c
Sisal.....¼ and 5-16 in. lb. .. @10½c
Sisal, Hay Rope, 2 to 10 ply.....lb. .. @ 9½c
Sisal, Med'm Lath Yarn.lb... @ 9 c
Cotton Rope:
Best, ¼-in. and larger..lb. 13@14 c
Med'm, ¼-in. and larger lb. 10@12 c
Com., ¼-in. and larger.lb. 8@10 c
Jute Rope.....lb. .. @6 c

Wire Rope—

List July 1, '99.....30&2½%

Ropes, Hammock—

Covert Saddlery Works.....70%

Rules—

Boxwood..75&10&10&10@75&10&10 &10&10&10%
Ivory ...40&10&10@40&10&10&10&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber ... .50&10%
Stanley R. & L. Co.; Boxwood..... 75&10&10@75&10&10&10&10%
Ivory..... .40&10&10@40&10&10&10%

Sad Irons—See *Irons, Sad.*

Sand and Emery Paper and Cloth—See *Paper and Cloth.*

Sash Cords—See *Cord, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage.*

Saw Frames—See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Note.—Extra 5@10% often given on Circulars, Cross Cuts, &c. and extra 5@7½% on Hand, Butcher, &c.

Atkins' Circular.....50%
Atkins' Band 50%
Atkins' Cross Cuts 40%
Atkins' Mulay, Mill and Drag.....50%
Atkins' One-Man Saw.....40&10%
Atkins' Wood Saws .....40&10%
Atkins' Hand, Compass, &c.....40%
Disston Circular Saw and Inserted Tooth..... 50%
Disston Band 2 to 14 in. wide.....60%
Disston Band ¼ to 1¼.....70%
Disston Crosscuts.....50%
Disston Narrow Crosscuts.....55%
Disston Mulay, Mill and Drag.....50%
Disston Framed Woodsaws.....35%
Disston Wo dsaw Blades.....40%
Disston Woo saw Rods.....25%
Disston Handsaws, Nos. 12, 99, 9, 10, d100, D8, 120, 79, 77, 8.....25%
Disston Hand Saws, Nos 7, 107, 10, 3, 1, 0, 00, Combination.....30%
Disston C mpass, Keyhole, &c.....25%
Disston Butcher Saws and Blades....35%
C. E. Jennings & Co.'s.....25&5@30&5%
Peace Circular and Mill..... 45&10%
Peace Cross Cuts, list Jan. 1, '99, 45&10&5%
Peace Hand, Panel and Rip.....25&10&5%
Richardson's Circular and Mill...45&10%
Richardson's X Cuts, list Jan. 1, '93, 45&10&5%
Richardson's Hand, &c..... 25&10&5%
Simonds' Circular Saws.....50%
Simonds' Crescent Ground Cross Cut Saws.....35%
Simonds' One-Man Cross Cuts.....40&10%
Simonds' Gang Mill, Mulay and Drag Saws.....45@45&5%

Hack Saws—

Disston Concave Blades.....25%
Disston Keystone.....30%
Disston Hack Saw Frames.....30%
Griffin's complete.....50@50&10%
Griffin's Hack Saw Blades....50@50&1 %
Star Hack Saws and Blades.....15&10%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without border, $18; with border, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete $4.00.....15&10%

Scale Beams—See *Beams, Scale.*

Scales—

Family, Turnbull's ... ...30@30&10%
Hatch, Counter, No. 171, good quality .....doz. $17.00@18.00
Hatch, Tea, No. 161...doz. $5.75@6.00
Union Platform, Plain....$2.00@2.10
Union Platform, Striped...$2.15@2 25
Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Chatillon's Grocers' Trip Scales.....50%
Pelouze Scales—Family, Candy Grocers' and Postal .....33⅓&5%
"The Standard" Portables.....45@50%
"The Standard" R. R. and Wagon....60%

Scrapers—

Box, 1 Handle .....doz $2.00
Box, 2 Handle .....doz. $3.00@4.00
Ship, No. 1, doz. $3.50; No. 2, $2.25@2.40
Adjustable Box Scraper (S. R. & L. Co.) $3.00.....40&10%
Foot, W. E. Pratt Mfg. Co. ₱ doz. $1.15@$1.35

Screen Window and Door Frames—See *Frames.*

Screw Drivers—See *Drivers, Screw.*

Screws—

Bench and Hand—

Bench, Iron.....doz. 1 in., $2.30; 1¼, $3.65; 1½, $5.00
Bench, Wood, Beech...doz. $2.00@2.10
Hand, Wood.....30&10@40&10%
Hand, Grand Rapids.....35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Jan. 30, '95..... .....70&5@70&5& ...%
Coach and Lag, Gimlet Point, list Jan. 30, '95.....70@70&5 %
Hand Rail, list Jan. 1, '81....82½&2%

Jack Screws—

Millers Falls.....50&10&10%
Millers Falls, Roller .....50&10%
P., S. & W .....40@40&10%
Sargent.....70&10&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.....60%
Flat or Round Head, Brass.....50%

Set and Cap—

Set (Iron or Steel) .....75@75&5%
Sq. Hd. Cap.....70@70&5%
Hex. Hd. Cap.... .....70@70&5%

Wood—

List Nov. 10, 1898. Discounts adopted June 28, '99.
Flat Head, Iron.....82½%
Round Head, Iron.....80%
Flat Head, Brass.....77½&10%
Round Head, Brass.....72½&10%
Flat Head, Bronze.....72½&5%
Round Head, Bronze.....70%
Drive Screws.....5%
Note.—An extra 5 or 10% is often given.

Scroll Saws—See *Saws, Scroll.*

Scythes—

Grass and Grain.....50&10%

Scythe Snaths—See *Snaths, Scythe.*

Seeders—

Raisin—

Enterprise.....25@30%

Sets—

Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls.....doz. $2.00
Wood Hdle., 14 Awls, 6 Tools ... doz. $2.25@2.40
Aiken's Sets, Awls and Tools:
No. 20, ₱ doz. $10.00.60&10@60&10&5%
Fray's Adj. Tool H'dle...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7..... .....50%
Millers Falls Adj. Tool H'dle, No. 1, $12; No. 4, $13; No. 5, $18 .... 15&10%
Stanley's Excelsior:
No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....40&10@40&10&5%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.... ₱ doz.....$9.00

Nail—

Round, assorted.....gro. $3 25@3.75
Octagon.....gro. $4 25@4.75
Knurled, Good .....gro. $6.00
Buck Brothers.....27½%
Cannon's Diamond Point, ₱ gr. $12..25%
Snell's Corrugated, Cup Pt.....50%
Snell's Knurled, Cup Pt..... ....66⅔%

Rivet—

Regular list.....70&5@75%

Saw—

Aiken's Genuine.....₱ doz. $4.50@5.00
Aiken's Imitation.....₱ doz. $3.00@3.10
Atkin's Criterion.....₱ doz. $6.00
Atkin's Adjustable.....₱ doz. $8.00
Bemis & Call Co.'s Cross Cut.....30&5%
Bemis & Call Co.'s Plate.....20%
Bemis & Call Spring Hammer.....30&5%
Disston's Star and Mona ch.....25%
Hammer, Bemis & Call Co.'s new Pat.45%
Morrill's No. 1, $15.00.....40&20%
Nos. 3 and 4, Cross Cut, $23.00.40&20%
No. 5, Mill, $31.00.....40&20%
No. 10, $15.50.....40&20%
No. 11, $16.00.....40&20%
Taintor Positive, ₱ doz. $18 .....60%

Sharpeners, Knife—

Tanite Mills ₱ gross, $14.40....25@33⅓%

Shaves, Spoke—

Iron.....	*....doz.*	*$1 00@1 25*	
Wood.....	*doz.*	*$1.75@2.00*	

Bailey's (Stanley R. & L. Co.).....50&10%
Goodell's, ₱ doz. $9.00.....15&10%
Stearns', Nos. 3 to 10.....40&10%

Shears—

Cast Iron...	*7*	*8*	*9 in*
Best	*$16.00*	*18.00*	*20.00 gro.*
Good.....	*$13.00*	*15.00*	*17 00 gro.*
Cheap.....	*$9.00*	*10 00*	*11.00 gro.*

Straight Trimmers, &c.:
Best quality, Jap.....70&5@70&10%
" Nickel..60&5@60&10%
Fair qual. Jap...80&10@80&10&10%
" Nickel.....75&5@75&10%
Tailors' Shears.....40@40&10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailors' Shears.....40@40&5%
Nat onal Cutlery Co., Nickel .....60&10%
National Cutlery Co., En. Hdls...70&1 %
Seymour's, Jan.....70&70&5%
Seymour's Nickel.....60@60&5%
Seymour's Tailors' Shears.....40%
Wilkinson's Hedge.....0%
Wilkinson's Sheep.....15%

Tinners' Snips—

Forged Handles, Steel Blades..30&10% Malleable Handles, Laid with Steel. 40%
Forged Handles, Steel Blades, Berlin, 40&10%
Niagara Snips.....40%
Seymour's..... .....40@40&5

Pruning Shears and Tools—

Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25@25&10%
Disston's Pruning Hook, ₱ doz. $12.00 25@25&10%
John T. Henry Mfg. Company's Pruning Shears all grades.....50&5%
Orange Shears.....50&30%
Grape..... ...50&10%
Tree Pruners.....75%
P., S. & W. Co.....60%
Seymour's.....60&10&10@70&5%

Sheaves—Sliding Door—

Stowell's Anti-Friction..... 50%
Patent Roller..... .60&10@60&10&5%
Patent Roller Hatfield's, Sargent's list, 80&10@80&10&7%
Reading..... .....70&10&75%
R. & E..... 60&10@60&10&5%
Wrightsville, Hatfield Pattern....80&10%

Sliding Shutter—

Reading list.....70&10@75%
R. & E..... .....60@60&10%
Sargent's list.....60@60&10%

Shells—

Shells, Empty—

Brass Shot Shells, Club, Rival, Climax, 65&5%
Brass Shot Shells, first quality, all gauges..... .....60&5%
First quality Rival, Club and Climax brands, 14, 16 and 20 gauge (₱7.50 list).....20&10&5%
Smokeless brand, 12, 10, 16 gauge.... 33⅓&10%
Star, Club, Rival and Climax Brands .... 33⅓&5%
Trap brand, 12 and 10 gauge.33⅓&10&5%
Primrose Club, Blue Rival, Yellow Rival and New Climax.....20%

Shells, Loaded—

Loaded with Black Powder..... 40&5%
Loaded with Nitro Powder..... 40&10&10&5%

Ship Tools—

L. & I. J. White 25%

Shoes, Horse, Mule, &c.—

Factory Shipments:
No. 2 and larger.....per 100 lbs., $3.35

Shot—

Drop, up to B, 25-lb. bag...$1.35@1.45
Drop, up to B, 5-lb. bag ..... .30
Drop, B and larger, 25-lb. bag.... $1.60@1.70
Drop, B and larger, 5-lb bag..... .35
Buck, 25 lb. bag..... .....$1.60@1.70
Buck, 5-lb. bag..... 35
Chilled, 25 lb. bag.....$1.60@1.70
Dust Shot, 25 lb. bag 2.00
Dust Shot, 5-lb. bag..... ... .50

Shovels and Spades—

Combination prices to small trade are as follows:

No. 2, Polished, Sq. or Rd. Point, D or L Handle:	*A1. 1st Grade.*	*B2. 2d Grade.*
Plain Back ...	*$9.30*	*$8 40*
Strap Back....	*8 70*	*7 80*
Cleveland Pat'n	*9.00*	*8 10*
	C3, 3d Grade.	*D1, 4th Grade.*
Plain Back....	*$7.50*	*$6.90*
Strap Back.....	*6.90*	*6.30*
Cleveland Pat'n	*7.20*	*6.60*

All other sizes add 30c doz. Black deduct 30c doz.

Note.—A further advance of 60 cents to retailers has been made by manufacturers, and is being put into effect by jobbers generally, but the price is often cut.

Shovels and Tongs—

Brass Head .....60&10@60&10&10%
Iron Head.....60&10@60&10&5%

Sieves and Sifters—

Hunter's Imitation.gro. $10 00@10.50
Buffalo Metallic, S. S & Co., ₱ gr.:

14&16	16&18	18&20
$10.00	$12.00	$13.20

Eclipse.....₱ gr. $9.00@ 9.50
Hunter's Genuine....₱ gr. $10.50@11.00
Shaker (Barler's Pat.) Flour Sifters..
₱ doz., $2.00.....25%

Sieves, Wooden Rim—

Mesh 18, Nested, doz.....$0.75@0 80
Mesh 20, Nested, doz..... .85@ .90
Mesh 24, Nested, doz ..... 1.00@1.05

Sinks—

Cast Iron—

Low list.....65@65&5%

NOTE.—*The low list is now generally used, but some jobbers use high list.*

Wrought Steel—

Columbus Galv'd and Enameled.....
50&10@50%
Columbus, Painted.....30&10@40%
L. & G... .....50%

Skeins, Wagon—

Malleable Iron.....70&10@75&10%
Steel.....45@45&5%
I. I. & B. Co. Steel.....45%

Slates—

"D" Slates.....50&10@50&10&10%
Unexcelled Noiseless Slates.....
60&6 tens@60&6 tens&5%
Wire Bound.....40&10@50%
Double Slates, add $1 case, net.

Slaw Cutters—See *Cutters.*

Snaps, Harness—

German.....50@50&5%
Covert Mfg. Co.:
Derby.....45&2%
High Grade.....45&2%
Jockey.....45&10&2%
Trojan.....45&10&2%
Covert's Saddlery Works:
Banner.....75%
Crown.....70%
Triumph 70%
W. & E. T. Fitch Co.:
Bristol .....40&10%
Empire.....50&5%
National.....50&5%
Clipper.....50&10&5%
Champion.....40&10%
Victor.....60&5%
O. e da 'ommun ty:
Sol d Steel.....65@65&10%
Solid Sw vel... .65&1 @65&10&10%
Sargent's Patent Guarded.....
70&10@70&10&10%

Snaths—

Scythe.....55%

Snips, Tinners'—See *Shears.*

Soldering Irons—

See *Irons, Soldering.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Silver Plated—

Flat Ware .....50&10@60&10%
Wm. Rogers M'g. Co.....50&10%

Miscellaneous—

German Silver .....60&10%
Wm. Rogers Mfg. Co.:
18% German Silver.....60%
Rogers' Silver Metal.....50&10%

Springs—

Door—

Gem (Coil).....20%
Star (Coil).....30%
Torrey's Rod, 39 in....₱ doz. $1.10@1.25
Warner's No. 1, ₱ doz. $1.50; No. 2, $3.40.....55&55&10%
Victor (Coil).....60&10@60&10&5%

Carriage, Wagon, &c.

1½ in. and wider...Blk. Hf Brt. Brt.
Tested and Temp 5 5¼ 5½c lb
Oil Tested and Tempered..... 6 6¼ 6½c lb
Cliff's Bolster Springs.....40&2%
Cliff's Seat Springs.....₱ pair 48¢

Sprinklers, Lawn—

Enterprise.....25@30%
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24.....35%

Squares—

Nickel plated.... } *List May 1, '95..*
Steel and Iron... } 70&10@75&10%
Rosewood Hdl. Try Square and T-Bevels .....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels.
40&10@40&10&10%
Disston's Try Sq. and T-Bevels....60&10%
Winterbottom's Try and Miter...50&10%

Squeezers—

Lemon—

Wood, Common, gro., No. 0, $5.00; No. 1, $6.50; No. 2, $10.00.
Wood, Porcelain Lined:
Cheap .....*doz. $2.00@2.75*
Good Grade..... .*doz. $3.00@3.50*
Tinned Iron.....*doz. $0.80@1.25*
Iron, Porcelain Lined doz. $3.25@3.50
Jennings' Star.....₱ doz. $1.85@1.90
Klug.....₱ doz. $2.00

Staples—

Barbed Blind..... .....*lb. 9@9¼c*
Electricians', Association list.....*80%*
Fence Staples, same price as Barbed Wire. See Trade Report.
Poultry Netting.....*lb. 5½@6c*
Grand Crossing Tack Co.'s list....75&10%

Steels, Butchers'—

Dick's.....40%
Foster Bros'.....30%
C. & A. Hoffmann's.....40%
Nichols Bros.....50%
John Wilson's, list Sept. 1, '94.....25%

Steelyards.....*40@40&10%*

Stocks and Dies—

Blacksmiths'.....*35@40%*
Gardner.....50%
G een River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Re ce's New Screw Plates.....25@30%
Curtis Reversible Ratchet Die Stock.25%

Stone—

Scythe Stones—

Pike Mfg. Co., list '95-'96.....33⅓%
Cleveland Stone Co., list Nov., '92..33⅓%

Oil Stones, &c.

Pike Mfg. Co.:
Hindostan No. 1, ₱ D...8¢
Sand Stone.....5¢
Turkey Oil Stone, Extra, 5 to 9 in.....80¢
Turkey Slips.....$2.00
} 33⅓&10%
Lily White Washita.....60¢
Rosy Red Washita.....60¢
Washita Stone, Extra.....50¢
Washita Stone, No. 1.....40¢
Washita Stone, No. 2.....30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Arkansas Stone, No. 1, 3 to 5½ in. $2.80
Arkansas Stone, No. 1, 5½ to 8 in. $3.50
} 33⅓&33⅓&10%
Tanite Mills:
Emery Oil, ₱ doz. $5.00.....50@60%

Stoners—

Cherry—

Enterprise..... .....25@30%

Stops, Bench—

Millers Falls.....15&10%
Morrill's.. ₱ doz., No. 1, $10.00; No. 2, $11.00, 40&20%
Stearns'.....40%

Stops, Window—

Ives' Patent.....25&5%
Taplin's.....45%

Stove Boards—

See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Straps, Box—

Cary's Universal .....20&10%

Stretchers, Carpet—

Cast Iron, Steel Points....doz. 70@75c
Cast Steel, Polished.....*doz. $2.25*
Socket.....*doz. $1.75*

Stuffers, Sausage—

Miles' Challenge, ₱ doz. $20...50@50&5%
Enterprise Mfg. Co., list Jan. 17, '93....
25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97.....30%

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks:
American Blued.....*90&20@90&25%*
American Tinned.....*90&20@90&25%*
American Cut Tacks...*90@90&10&5%*
Swedes Iron Tacks.....*90&10@90&20%*
Upholsterers' Tacks..*90&35@90&40&5%*
Gimp Tacks.....*90&35@90&40&5%*
Lace Tacks.....*85&20@85&30%*
Trimmers' Tacks.....*90&10@90&20%*
Looking Glass Tacks.....*70@70&10%*
Bill Posters' and Railroad Tacks....
90&25@90&35%
Hungarian Nails.....*80&5@80&10%*
Common and Patent Brads.75@75&5%
Trunk and Clout Nails:
Blued.....*80@80&10%*
Tinned.....*80@80&10%*
NOTE.—*Jobbers' prices are often lower than manufacturers'.*

Miscellaneous—

Double Point Tacks.....*90&5@...%*
Steel Wire Brads, R. & E. Mfg. Co.'s list.....*60&10@60%*
See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co.....30-gal. $3.50
Emerald, S. S. & Co.....60-gal. $4 40
Queen City S. S. & Co., 30-gal.....$3.85
Queen City S. S. & Co., 60-gal.....$4.80

Tapes, Measuring—

American Asses' Skin .....*40&10@50%*
Patent Leather.....*25@25&10%*
Steel.....*33⅓@40%*
Chesterman's..... .....*25@25&5%*
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899.....35%
Lufkin's Steel.....33⅓@35%
Lufkin's Metallic .....30&5%

Thermometers—

Tin Case.....*80&10@80&10&10%*

Ties, Bale—Steel.

Standard Wire.....*50&10&5%*

Ties, Wall—

Cleveland, Steel.....₱ 1000, $10.00

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco.*

Tools—

Coopers'—

L. & I. J. White .....*20@20&5%*

Saw—

Atkins' new list.....40%
Simonds' 33⅓%

Transom Lifters—

See *Lifters, Transom.*

Traps—Game—

Newhouse.....*50&5@50&10%*
Oneida Pattern.....*80@80&5%*
Genuine Blake, Lamb & Co.....
60&10@50&10&5%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes.8@9c
Mouse, Round or Square Wire.....
doz. $0.85@1.00
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat.....₱ doz. $15.00
No. 3, Rat.....₱ doz. $5.85
No. 3½, Rat .....₱ doz. $4.50
No. 4, Mouse.....₱ doz. $4.30
No. 5, Mouse.....₱ doz. $3.00
Schuyler's Rat Killer, No. 1, ₱ gr. $13.50; No. 2, ₱ gr. $15.00
Out o' Sight, Mouse, No. 1, ₱ doz. 60¢; Rat, No. 2, $1.25; Mo e, $6.00; Gopher, $1.50; Stop Thief, No. 1, $1.25; No. 2, $1.50.

Fly—

Balloon, Globe or Acme.....
doz. $1 25; gro. $14.50@15.00
Harper, Champion or Paragon ..
doz. $1.50; gro. $17.00

Trimmers, Spoke—

Bonney's No. 1, ₱ doz. $3.00; No. 2, $4.00
Douglas', ₱ doz. $9.00.....90%
Stearns'.....20&10%

Trowels—

Diston Brick and Pointing..... .....80%
Diston Plastering.....25%
Diston 'Standard Brand" and Garden Trowels.....40%
Peace's Plastering.....25@25&5%
Rose Brick and Plastering...30@30&10%
Woodrough&McParlin, Plast'ring.25&10%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40%
Daisy Stove Trucks, Improved pattern ₱ doz. $18.00

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$5.00*	*5 50*	*6.00*

Galvanized S. S. & Co., with Wringer Attachment, ₱ doz., No. 10, $6.25; No. 20, $6.75; No. 30.....$7 50

Twine—

Miscellaneous—

Flax Twine—	*BC*	*B.*
No. 9, ¼ and ½-lb. Balls	*.20c*	*24c*
No. 12, ¼ and ½-lb. Balls	*.17c*	*20c*
No. 18, ¼ and ½-lb. Balls	*.14c*	*17c*
No. 24, ¼ and ½-lb. Balls	*.14c*	*17c*
No 36, ¼ and ½-lb. Balls	*.13c*	*16c*

Chalk Line, Cotton, ½-lb. Balls.....
18@20c
Cotton Mops, 6, 9, 12 and 15 lb. to doz .....*7@8c*
Cotton Wrapping, 5 Balls to lb ...
9@15c
American 2-Ply Hemp, ¼ and ½-lb. Balls ..... .*10@12c*
American 3-Ply Hemp, 1-lb. Balls..
10@12c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine)..... .....*8c*
India 3-Ply Hemp, 1-lb. Balls.....*8c*
India 3-Ply Hemp, 1½-lb. Balls....
7@7½c
2, 3, 4 and 5-Ply Jute, ½-lb. Balls.6½c
Mason Line, Linen, ½-lb. Balls.. 45c
No. 2½ Mattress, ¼ and ½-lb. Balls 3½c
Wool.....*5@5½c*

Vises—

Solid Box.....*60@60&5%*
Bonney's Saw Vises.....40&10%

Parallel—

Bonney's.....40&10%
Fisher & Norris Double Screw....15&10%
Hollands'.....40@40&10%
Massey's Perfect.....20@25%
Massey's Clincher.....40@40&10%
Merrill's 20%
Miller's Falls.....45&10%
Parker's.....20@25%
Parker's Oval Slide.....50&10%
Parker's Victor.....30%
Prentiss.....20@25%
Sargent's.....70&10@70&10&10%
Simpson's Adjustable.....40%
Stephens'.....25@30%
Toles' Woodworking.....25%
Trenton.....40&5@40&10%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00.. ...40&10%
Disston's D 8 Clamp and Guide, ₱ doz $30.....25%
Reading.....40&10%
Stearns' Common, Nos. 1 & 2 .....40%
Stearns' Rubber Jaw, No. 83.... 30&7½%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....30&7½%

Miscellaneous—

Bignall & Keeler Combination Pipe Vise.....60&5%

Parker's Combination Pipe:
87 Series.....60%
187 Series.....60&5%
No. 870.....40%

Wads—Price Per M.

B. E., 11 up.....	*60c*
B. E., 9 and 10.....	*70c*
B. E., 8.....	*80c*
B. E., 7.....	*80c*
P. E., 11 up.....	*$1.00*
P. E., 9 and 10.....	*1.25*
P. E., 8	*1.50*
P. E., 7.....	*1.50*
Ely's B E., 11 and larger	*$1.70@1 75*
Ely's P. E., 12 to 20	*$3.00@3 25*

Dis. 50&5%

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Aluminum—
S. S. & Co. Reduced List..... .....40%

Cast Iron, Hollow—

Stove Hollow Ware:
Ground.....*60&10@65%*
Unground.....*60&10&10@70%*
White Enameled Ware:
Muslin Kettles....*75&10@75&10&5%*
Boilers and Saucepans...*60@60&5%*
Tinned Boilers and Saucepans.60&5%
See also *Pots, Glue.*
Note.—See Trade Report.

Enameled—

Agate Nickel Steel Ware, list July '99.40%
Granite Ware, list Jan. 1, '94, revised Jan. 2, '95 .....40&10%
Second Quality, Agate Nickel Steel..65%
Second Quality, Granite .....
70&10@70&10&10%
Iron Clad:
Lippered Ware, high list.....70%
Princess Ware, special list.....33⅓%
Mottled Ware, high list.....75&15%
Never Break Enameled.....50&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch.....	*6*	*7*	*8*	*9*
Each.....	*.40c*	*45c*	*50c*	*60c*

Steel Hollow Ware.

Avery Spiders & Griddles .....70@70&5%
Avery Kettles.....60@60&10%
Lava.....50&5%
Never Break Spiders and Griddles.....
70@70&5%
Never Break Kettles..... 60@60&10%
Solid Steel Spiders & Griddles. 70@70&5%
Solid Steel Kettles.....60@60&10%
Solid Steel Ware, Enameled ..... 50&5%

Silver Plated Hollow—

William Rogers Mfg. Co.....40&10&5%

Washboards—

Solid Zinc: ₱ doz
Crescent, family size, bent frame.$3.00
Red Star, laundry size, stationary protector.....$4.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector.....$2.50
Wilson, family size, bent frame...$2.50
Single Zinc Surface:
Naiad, protector, family size, open back perforated..... .....$2.25
Saginaw Globe, protector, family size, ventilated back.....$2.10
Wilson, bent frame, family size, ventilated back $2 10

Washers—
Leather, Axle—
Solid.....80&10&10@85%
Patent.....85@85&5%
Coil: 3/8 1 1 1/8 1 1/4 *Inch.*
13c 14c 15c 17c *per 100*

Iron or Steel—
Size bolt.... 5-16 3/8 1/2 5/8 3/4
Washers....$3.80 4.30 3.60 3.30 3.10
In lots less than one keg add 1/4c per lb., 5-lb. boxes add 1/2c to list.
NOTE—*Jobbers' prices generally lower than manufacturers'.*

Washer Cutters—
See *Cutters, Washer.*

Washing Machines—
See *Machines, Washing.*

Water Coolers—
See *Coolers, Water.*

Weaners—
Tyler's New Halter—No. 1 ₱ doz. $3.45; No. 2, $3.70; No 3, $4.00; No. 4, $4.80
Tyler's Safety—Nos. 1 and 2, ₱ doz. $1.70; No. 3, $2.00; No. 4, $2.30.

Wedges—
Oil Finish.....*lb.* 2.70@2.85c

Axe Finish.....*lb.* 3.00@3.10c

Weights, Sash—
Carloads at factory.....$16.50@18.50
Less than carloads at factory.....
$17.50@19.50
Note—Some Foundries are naming higher prices.

Well Buckets, Galvanized
See *Pails, Galvanized.*

Wheels Well—
8-in., $2.15; 10-in., $2.50; 12-in., $3.00; 14-in., $5.00.

Wire and Wire Goods—
Market: Nos. 6 to 16:
Br. & Ann.....70&5@72½&5
Cop'd.....65&5@67½&5
Galv.....65&5@67½&5
Tin'd, Tin'd list.....73½&5@75%
Stone, Br. and Ann'd:
Nos. 19 to 26.....77½@77½&2½&5
Nos. 27 to 36.....77½&5@77½&7½&5
Annealed Wire on Spools.....
60&10@60&10&5%
Brass, list Feb. 26, '98.....15%
Copper, list Feb. 26, '96.....30%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £, 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—
Iron and Brass, list July 1, 1899....
80&10@80&10&10%

Wire Cloth and Netting—
Galvanized Wire Netting.....
80@80&15%
Painted Screen Cloth per 100 ft....
$1 50@....

Wire Barb—See *Trade Report.*

Wire, Rope—See *Rope, Wire.*

Wrenches—
Agricultural.....75&10@30%
Baxter's S.....70%
Coes' Genuine.....33⅓&10&5&3%
Coes' "Mechanics".33⅓&10&10&5&3%
Acme.....60@60&5%
Aiken's Pocket (Bright).....$2.00@3.20
Alligator.....75%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable S Pipe.....40%
Brigg's Pattern.....30&10%
Combination Black.....40&10%
Combination Bright.....40&5%
Cylinder or Gas Pipe.....50%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....50%
Boardman's.....33⅓%
Bull Dog, W. & B.....70@70&10%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Hercules.....70&10@75%
Stevenson.....60&10&10%
Stillson's.....55%

Wrought Goods—
Staples, Hooks, &c., list March 17, '93.....85@85&10%

Yokes, Neck—
Covert Saddlery Works, Trimmed...70%
Covert Saddlery Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters'.....20%

Zinc—
Sheet.....*lb* 7¼c@8c

PAINTS, OILS AND COLORS.—Wholesale Prices.

White Lead, Zinc, &c.
Lead, Foreign white, in Oil.... 7½@8¾
Lead, American White, in Oil:
Lots of 500 ℔ or over..... 5¼@5¾
Lots less than 500 ℔..... @6¼
Lead, White, in oil, 25 ℔ tin pails, add to keg price..... @⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price..... @1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.... @1¼
Lead White, Dry in bbls..... @5
Lead, American. Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry..... ₱ ℔ 4½@5
Zinc, French, S. & B. Red Seal.... @7 7-10
Zinc, French, S. & B. Green Seal ..@7 7-10
Zinc, Paris, Red Seal..... @6½
Zinc, Paris, Green Seal..... @6½
Zinc, Antwerp, Red Seal..... @7½
Zinc, Antwerp, Green Seal..... @6½
Zinc, V. M. in Poppy Oil, G. Seal lots of 1 ton and over..... @11¾
lots less than 1 ton..... @12¼
Zinc, V.M. in Poppy Oil, Red Seal, lots of 1 ton and over..... @10¼
lots of less than 1 ton..... @11¼
DISCOUNTS.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%. No discount allowed on less than 10 bbl. lots.

Dry Colors.
Black, Carbon.....₱ ℔ 6 @10
Black, Drop, Amer..... 2½@4
Black, Drop, Eng..... 5 @10
Black, Ivory..... 9 @20
Blue, Celestial.....₱ ℔ 5½@8
Blue, Chinese..... 31 @36
Blue, Prussian..... 28 @32
Blue, Ultramarine..... 7 @35
Brown, Spanish..... ½@1
Brown, Vandyke, Amer..... 1½@2½
Brown, Vandyke, Foreign..... 2½@5½
Carmine, No. 40, in bulk.....$2.20@2.25
Carmine, No. 40, in ℔ bottles. 2.35@..
Carmine, No. 40, in ounce bot. 3.50@3.60
Green, Chrome, ordinary..... 5 @6
Green, Chrome, pure..... 19 @35
Lead, Red, bbls. and ½ bbls.... @5½
Lead, Red, kegs..... @6
Litharge, bbls. and ½ bbls..... @5¾
Litharge, kegs..... @6
Ocher, French Washed..... 1½@2½
Ocher, German Washed..... 4½@5
Ocher, American... ₱ ton $10.00@15.00
Orange Mineral, English..₱ ℔ 8½@9½
Orange Mineral, French.....10½@10¾
Orange Mineral, German..... 8½@9¼
Orange Mineral, American .... 7¾@8
Red, Indian, English..... 4½@8½
Red, Indian, American..... 3 @3½
Red, Turkey..... 7½@10
Red, Tuscan..... 7 @10
Red, Venetian, Amer., ₱ 100 ℔ .60 @90
Red, Venetian, English.....$1.05@2.00
Sienna, Italian, Burnt and Powdered.....₱ ℔ 2¾@5
Sienna, Ital., Raw, Powd..... 2¾@5
Sienna, American, Raw..... 1¼@1¼
Sienna, American, Burnt and Powdered.....₱ ℔ 1¼@1½
Talc, French.... ....₱ 100 ℔ $1.10 @1.25
Talc, American..... .80 @65
Terra Alba, French, ₱ 100 ℔ ..80 @1.00
Terra Alba, English..... .85 @1.00
Terra Alba, American No. 1....65 @75
Terra Alba, American No. 2....50 @60
Umber, Turkey, Bnt. & Pow. ₱ ℔ 2½@3½
Umber, Turkey, Raw & Powd. 2½@3½
Umber, Bnt. Am r..... 1¼@1½
Umber, Raw, Amer..... 1¼@1½
Yellow, Chrome.....10 @25
Vermilion, American Lead..... @10
Vermilion, Quicksilver, bbls or kegs..... @61
Vermilion, Quicksilver, bags... @62
Vermilion, Quicks'r, sm'r pkgs. @67
Vermilion, English, Import... .65 @80
Vermilion, Artificial..... 5 @20
Vermilion Chinese.... .....80 @90

Colors in Oil.
Black, Lampblack. Best..... 13 @14
Black, Lampblack, Common...10 @11
Blue, Chinese..... 35 @40
Blue, Prussian..... 30 @35
Blue, Ultramarine..... 12 @16
Brown, Vandyke..... 8 @13
Green, Chrome..... 8 @14
Green, Paris..... 20 @24
Sienna, Raw..... 8 @13
Sienna, Burnt..... 8 @13
Umber, Raw..... 8 @12
Umber, Burnt..... 8 @12

Miscellaneous.
Barytes, Foreign, ₱ ton....$20.00@21.00
Barytes, Amer. floated..... 19.00@20.00
Barytes, Crude..... 8.00@10.00
Chalk, in bulk.....₱ ton 2.00@..
Chalk, in bbls.....₱ 100 ℔ 35@..
China Clay, English..₱ ton 11.00@17.00
Cobalt, Oxide.....₱ 100 ℔ .....@1.75
Whiting, Common. ₱ 100 ℔ .42½@.50
Whiting, Gilders..... .47@.50
Whiting, extra Gilders'.... @55%

Putty.
In barrels and ½ bbls..... 1 4-10@1¼
In tubs..... 1½@1 6-10
In tin cans..... 1½@2
In bladders..... 1½@2

Spirits Turpentine.
In Southern bbls.... .....@51½¢
In machine bbls .....@52 ¢

Glue.
Low Grade.....₱ ℔ 13 @15
Cabinet..... 13 @16
Medium White..... 14 @16
Extra White..... 16 @25
French..... 12 @25
Irish..... 13 @15

Animal, Fish and Vegetable Oils.
Linseed, City, raw.....₱ gal. 40 @41
Linseed, City, boiled..... 43 @43
Linseed, State and Western, raw 38@39
Linseed, raw Calcutta seed.... @60
Lard, Prime City, present make 43 @45
Lard, Extra No. 1..... @35
Lard, No. 1..... @31
Cotton-seed, Crude..... 21 @21¼
Cotton-seed, Summer Yellow, prime..... 26½@27
Cotton-seed Summer Yellow, off grades..... 25½@26
Sperm, Crude..... 50 @52
Sperm, Natural Spring..... 53 @55
Sperm, Bleached Spring..... 58 @60
Sperm, Natural Winter..... @57
Sperm, Bleached Winter..... 62 @65
Whale, Crude..... @..
Whale, Natural Winter..... @43
Whale, Bleached Winter..... @45
Whale, Extra Bleached Win... @48
Menhaden, Crude, Sound..... 23 @24
Menhaden, Light Pressed..... 28 @29
Menhaden, Bleached Winter.... @31
Menhaden, Extra Bleached.... 34 @..
Tallow, Western, prime..... 44 @45
Cocoanut, Ceylon..... 5¾@6
Cocoanut, Cochin..... 7 @7¾
Cod, Domestic..... 33 @35
Cod, Newfoundland..... 38 @40
Red Elaine..... 28 @30
Red Saponified.....₱ ℔ 4 @4¼
Bank.....₱ gal. .. @27
Straits..... @28
Olive, Italian, bbls..... 58 @60
Neatsfoot, prime..... 44 @45
Palm, prime, Lagos.....₱ ℔ 5¼@5¾

Mineral Oils.
Black, 29 gravity, 25@30 cold test.....₱ gal. .. @7¼
Black, 29 gravity, 15 cold test. .. @8½
Black, summer..... 6¾@7½
Cylinder, light filtered..... 13½@15%
Cylinder, dark filtered..... 11½@18%
Paraffine, 23½@24 gravity..... 8¾@9
Paraffine, 25 gravity..... .. @8¼
Paraffine, 28 gravity..... .. @7½
Paraffine, red, No. 1..... .. @8½
In small lots ¼¢ advance.

THE IRON AGE.

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CURRENT METAL PRICES.

AUGUST 23, 1899.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.6¢ ₩ ℔; Square, 0.8¢ ₩ ℔	
1 to 1⅞ in. round and square	₩ ℔ 2.30@2.40¢
1⅛ to 4 in. x ⅜ to 1 in.	
Refined Iron:	
1 to 1⅞ in. round and square	₩ ℔ 2.40@2.50¢
1⅛ to 4 in. x ⅜ to 1 in.	
1⅛ to 4 in. x ¼ to 5-16	₩ ℔ 2.60@2.70¢
Rods—⅜ and 11-16 round and square	₩ ℔ 2.60@2.70¢
Angles:	
3 in x ¼ in and larger	2.55¢
1¼ to 2¾ in. x ¼ in and heavier	2.65¢
1 to 3 in. x 3-16 in.	2.75¢
1 to 3 in. x ⅛ in.	2.85¢
Tees:	
1 in.	2.95¢
1¼ to 2¾ in.	2.75¢
3 in. and larger	2.65¢
Beams	3.00¢
Channels	3.00¢
Bands—1 to 6 x 3-16 to No. 12	₩ ℔ 2.70 ¢@ 2.80¢
"Burden's Best" Iron, base price	₩ ℔ 3.40¢
Burden's "H. B. & S. Iron, base price	₩ ℔ 3.20¢
"Ulster"	₩ ℔ 3.40¢
Norway Bars	3.75 @ 4.25¢
Norway Shapes	4.25 @ 4.75¢

Merchant Steel from Store—

	per ℔
Open Hearth and Bessemer Machinery	2.60 to 2.70¢
Toe Calk, Tire and Sleigh Shoe	$3.00@3.25¢
Best Cast Steel, base price in small lots	7 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Soft Steel Sheets—

¼ inch	3.10¢	No. 14	3.30¢
3-16 inch	3.20¢	No. 16	3.40¢
No. 8	3 20¢	No. 18	3 45¢
No. 10	3.20¢	No. 20	3.50¢
No. 12	3.25¢	No. 22	3.55¢

Sheet Iron from Store.

Black.

	Common American.	B. G. Cleaned American.
Nos. 10 to 16	₩ ℔, 3.25	3.30¢
Nos. 17 to 21	₩ ℔, 3.30	3.40¢
Nos. 22 to 24	₩ ℔, 3.35	3.50¢
Nos. 25 and 26	₩ ℔, 3.40	3.55¢
No. 27	₩ ℔, 3.45	3.60¢
No. 28	₩ ℔, 3.50	3.70¢

Russia, Planished, &c.

Genuine Russia, according to assortment	₩ ℔ 10½¢
Patent Planished	₩ ℔ A, 9½¢; B, 8½¢, net.
Patent Planished Sheet Steel	₩ ℔ 8½¢

Galvanized.

	B. B.
Nos. 10 to 16	₩ ℔, 12¢
Nos. 17 to 21	₩ ℔, 13¢
Nos. 22 to 24	₩ ℔, 14¢
Nos. 25 to 26	₩ ℔, 15¢
No. 27	₩ ℔, 16¢
No. 28	₩ ℔, 17¢
No. 29	₩ ℔, 19¢
No. 30	₩ ℔, 21¢

67½@70% off.

36 in. 1¢ ₩ ℔ higher.

Foreign Steel from Store—

Best Cast	₩ ℔ 14 ¢
Extra Cast	₩ ℔ 16½ @ 17 ¢
Swaged, Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 14 ¢
Blister, 1st quality	₩ ℔ 12 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 14 ¢
2d quality	₩ ℔ 13 ¢
3d quality	₩ ℔ 11 ¢
R. Mushet's "Special"	₩ ℔ 46 ¢
" " " Annealed	₩ ℔ 75 ¢
" " "Titanic"	₩ ℔ 19 ¢
Hobson's Choice XX Extra Best	₩ ℔ 35 ¢
Jessop Self Hardening	₩ ℔ 40 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson Self-Hardening	₩ ℔ 40 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free.	Per ℔
Banca, Pigs	33¢
Straits, Pigs	32¢
Straits in Bars	33¢

Tin Plates—

American Charcoal Plates.

Calland Grade:	
IC, 14 x 20	$6.75@7.00
IX, 14 x 20	8.25@8.50
Melyn Grade:	
IC, 14 x 20	6.50
IX, 14 x 20	7.75
Allaway Grade:	
IC, 14 x 20	5.75
IX, 14 x 20	6.75

American Coke Plates—Bessemer—

IC, 14 x 20 108 ℔	$5.00@5.10
IX, 14 x 20	5.75@6.10
IXX, 14 x 20	7.10@7.20

American Terne Plates—

IC, 20 x 28	$9 75@10.50
IX, 20 x 28	11.75@12.50

Tin Boiler Plates, American—

IXX, 14 x 26 112 sheets	$12.70
IXX, 14 x 28 112 sheets	13.65
IXX, 14 x 31 112 sheets	15.10

Copper—

Duty: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₩ lb.

Ingot—

Lake	19¼@19¾¢
Ansonia grade Casting	18¾@19 ¢

Sheet and Bolt—

February 2 1899. Prices, in cents per pound. Sheet 30 x 60. Net.

Not wider than	Not longer than	And longer than	64 oz. & over, 50 lb. sheet, 30 x 60 and heavier.	32 oz. to 64 oz., 25 to 50 lb.	24 oz. to 32 oz., 18¾ to 25 lb.	16 oz. to 24 oz., 12½ to 18¾ lb.	14 oz. and 15 oz., 11 to 12½ lb.	12 oz. and 13 oz., 9½ to 11 lb.	10 oz. and 11 oz., 7¾ to 9½ lb.	8 oz. and 9 oz., 6¼ to 7¾ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	22½	23½	23½	23½	23½	24½	25½	28½	31½
30	96	72	22½	22½	22½	23½	23½	25½	28½	31½	
30	.....	96	22½	22½	22½	23½	24½	28½			
36	72	.....	22½	22½	22½	23½	24½	26½	29½	32½	
36	96	72	22½	22½	22½	23½	24½	28½	31½		
36	120	96	22½	22½	22½	23½	25½				
36	.....	120	22½	22½	23½	24½					
48	72	.....	22½	22½	23½	24½	26½	29½	32½		
48	96	72	22½	22½	23½	25½	27½	30½			
48	120	96	22½	22½	24½	26½	30½				
48	.....	120	22½	23½	25½	28½					
60	72	.....	22½	23½	23½	25½	28½	33½			
60	96	72	22½	22½	24½	26½	31½				
60	120	96	22½	23½	25½	28½					
60	120	120	22½	24½	26½	30½					
72	96	.....	22½	23½	25½	30½					
72	144	96	22½	24½	27½	32½					
72	.....	144	23½	25½	30½						
108	120	.....	23½	25½	31½						
108	.....	120	25½	26½							
wider than 108	144	.....	26½	28½							
	.....	144	27½	30½							

Bolt Copper, ⅜ inch diameter and over, ₩ ℔ 22½¢

Circles, Segments and Pattern Sheets, 3¢ ₩ ℔ advance over price of sheet Copper required to cut them from.

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ ℔ over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 oz. ₩ square foot, 2¢ ₩ ℔ over the foregoing prices.

All Polished Copper, 20 in. wide and under, 1¢ ₩ ℔ advance over the price for Cold Rolled Copper.

All Polished Copper, over 20 in. wide, 2¢ ₩ ℔ advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₩ ℔ more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₩ ℔	26½¢
13 oz. and up to 14 oz. to square foot, ₩ ℔	27½¢
10 oz. and up to 12 oz., ₩ ℔	29½¢
Lighter than 10 oz., ₩ ℔	30½¢
Circles less than 8 in. diameter, 2¢ ₩ ℔ addition al.	
Circles over 13 in. diameter are not classed as Copper Bottoms.	

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.

Nos.	0000 to 8	9 and 10	11 and 12
	20¢	20½¢	20¼¢
Nos.	13	14	15	16
	20½¢	20¾¢	21¢	21¼¢
Nos.	17	18	19	20
	21½¢	22¢	22½¢	22¾¢

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.

Feb. 6, 1899. Net. Outside Diameter.

Stubs' W. G.	B. & S. W. G.	¼	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1¼	1½
4-11	3- 9	...	.....	...	.....	33	31	30	29	28	27	25	24
12	10	...	.....	37	35	33	31	30	29	28	27	25	24
13	11	...	.....	37	35	33	31	30	29	28	27	25	24
14	12	...	41	37	35	33	31	30	29	28	27	25	24
15	13	...	42	38	36	33	32	31	30	30	28	26	25
16	14	...	43	39	37	34	33	32	31	30	29	26	25
17	15	...	44	40	38	35	34	33	32	31	30	27	26
18	16	61	46	42	39	36	35	34	32	31	30	28	27
19	17	62	47	43	40	37	36	35	34	33	32	30	29
20	18-19	64	49	44	41	39	38	37	36	35	34	32	31
21	20	66	51	46	43	41	40	39	38	37	36	35	34
22	21	71	56	48	44	42	41	40	39	38	37	37	36
23	22	76	61	50	46	44	43	42	41	40	39	39	39
24	23	81	66	53	48	46	45	44	43	41	40	40	41
25	24	86	71	56	51	49	47	46	45	43	43	44	45

Copper Bronze and Gilding Tube, 3¢ ₩ ℔ additional

Iron Pipe Sizes—Brass

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6 inch
80	82	29	27	21	21	21	21	21	21	21	23	23	25	27	28¢₩℔

Copper, Bronze or Gilding Tubes, 3¢ ₩ ℔ additional

Brazed Brass Tubing.

(To No. 19, inclusive.) Feb. 26 1896

Brown & Sharpe's gauge standard.

	Per ℔.
Plain Round Tube, ¾ in. up to 2 in.	$0.35
" " ⅞ " ¾ "	.36
" " 1 " ⅞ "	.38
" " 1⅛ " 1 "	.41
" " 5-16 " ⅛ "	.48
" " ¼ " 5-16 "	.55
" " 3-16 " ¼ "	1.00
" " ⅛ " 3-16 "	1.50
Smaller than ⅛ inch	Special
3 inch and larger	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50
Bronze and Copper, advance on Brass List, 3 cents.	
Discount from list %	30@25%

Roll and Sheet Brass—

(Brown & Sharpe Standard Gauge.)

Common High Brass. Wider than and including	in. 2 12	in. 12 14	in. 14 16	in. 16 18	in. 18 20	in. 20 22	in. 22 24
To No. 20, inclusive	.22	.23	.25	.27	.29	.31	.33 .36
Nos. 21, 22, 23 and 24	.22	.24	.26	.28	.30	.32	.34 .37
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35 .38
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.36 .39
Common High Brass. Wider than and including	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40	in.
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To No. 20, inclusive	.39	.42	.46	.50	.55	.60	.65	*
Nos. 21, 22, 23 and 24	.40	.43	.47	.51	.56	.61	.68	
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71	
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75	

* Special prices not less than 80 cents.

Add 1¢ ₩ ℔ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List 10%

Wire in Coils.

List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gild'g bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23½	.27½	.28¼
No. 17 and No. 18	.24	.28	.29
No. 19 and No. 20	.25	.29	.33
No. 21	.26	.30	.34
No. 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.62
No. 31	.51	.55	.67
No. 32	.55	.59	.73
No. 33	.59	.63	.82
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 10%; Copper Wire, Net. List November 16, 96.

Spring Wire, 2¢ ₩ ℔ advance.

Spelter—

Duty: In Blocks or Pigs, 1¢ ₩ ℔

Western Spelter	6¼¢

Zinc.

Duty: Sheet, 2¢ ₩ ℔.

600 ℔ casks	8¼¢ | Per ℔ 8¾¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₩ ℔. Pipe and Sheets, 2¾¢ ₩ ℔.

American Pig	5@5¼¢
Bar	5¾¢
Pipe (full lengths), subject to discount 20%	6¾¢
Pipe (cut lengths), subject to discount 20%	7¼¢
Tin Lined Pipe, subject to discount 20%	12½¢
Block Tin Pipe, subject to discount 20%	45¢
Sheet (full rolls) subject to discount 20%	7¾¢
Sheet (cut rolls (subject to discount 20%	8¾¢
Old Lead in exchange, 4¢ ₩ ℔.	

Solder.

½ & ½, guaranteed	21¢
No. 1	18@18½¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₩ lb.

Cookson	₩ ℔ 11½¢
Hallett's	₩ ℔ 10½¢
U. S.	₩ ℔ 10¾@11¢

Aluminum—

Duty: Crude, 8¢ ₩ ℔. Plates, Sheets, Bars and Rods 13¢ ₩ ℔.

No. 1 Aluminum (guaranteed over 99.75% pure), in ingots for remelting:	
Small lots	₩ ℔ 87¢
100-℔ lots	₩ ℔ 85¢
No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting:	
Small lots	₩ ℔ 83¢
100-℔ lots	₩ ℔ 81¢

Aluminum Sheet, B. & S. gauge. 50 ℔ or more.

Wider than	6-in.	14-in.	24-in.
And including	14-in.	24-in.	30-in.
	₩ ℔.	₩ ℔.	₩ ℔.
Nos. 13 to 19	$0.40	$0.43	$0.45
No. 20	.42	.44	.47
Nos. 21 to 23	.44	.46	.49
No. 24	.44	.48	.51
No. 25	.45	.49	.52
No. 26	.45	.52	.57
No. 27	.46	.55	.60
No. 28	.46	.55	.59
No. 29	.47	.58	.67
No. 30	.48	.62	.75

Note.—Lots of less than 50 ℔ 5¢ ₩ ℔ extra.

Aluminum Wire, B. & S. Gauge.

Larger than No. 9	₩ ℔ 40¢	No. 15	₩ ℔ 43¢
No. 9 to No. 10	₩ ℔ 40½¢	No. 17	₩ ℔ 50¢
No. 11	₩ ℔ 41 ¢	No. 18	₩ ℔ 55¢
No. 12	₩ ℔ 41¾¢	No. 19	₩ ℔ 60¢
No. 13	₩ ℔ 42 ¢	No. 20	₩ ℔ 65¢
No. 14	₩ ℔ 42½¢	No. 21	₩ ℔ 85¢

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper	₩ ℔ 15¼¢
Light and Tinned Copper	₩ ℔ 14 ¢
Heavy Brass	₩ ℔ 10¾¢
Light Brass	₩ ℔ 8¾¢
Lead	₩ ℔ 4 ¢
Tea Lead	₩ ℔ 3¾¢
Zinc	₩ ℔ 3¾¢
No. 1 Pewter	₩ ℔ 17¾¢
No. 2 Pewter	₩ ℔ 10 ¢
Tin Plate Scrap	₩ ton $3.50
Wrought Scrap Iron	₩ gross ton $11.00
Heavy Cast Scrap	₩ gross ton $11.00
Stove Plate Scrap	₩ gross ton $8.00
Burnt Iron	₩ gross ton $5.25